MARCH 27, 1943

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Railway Age

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during the war year

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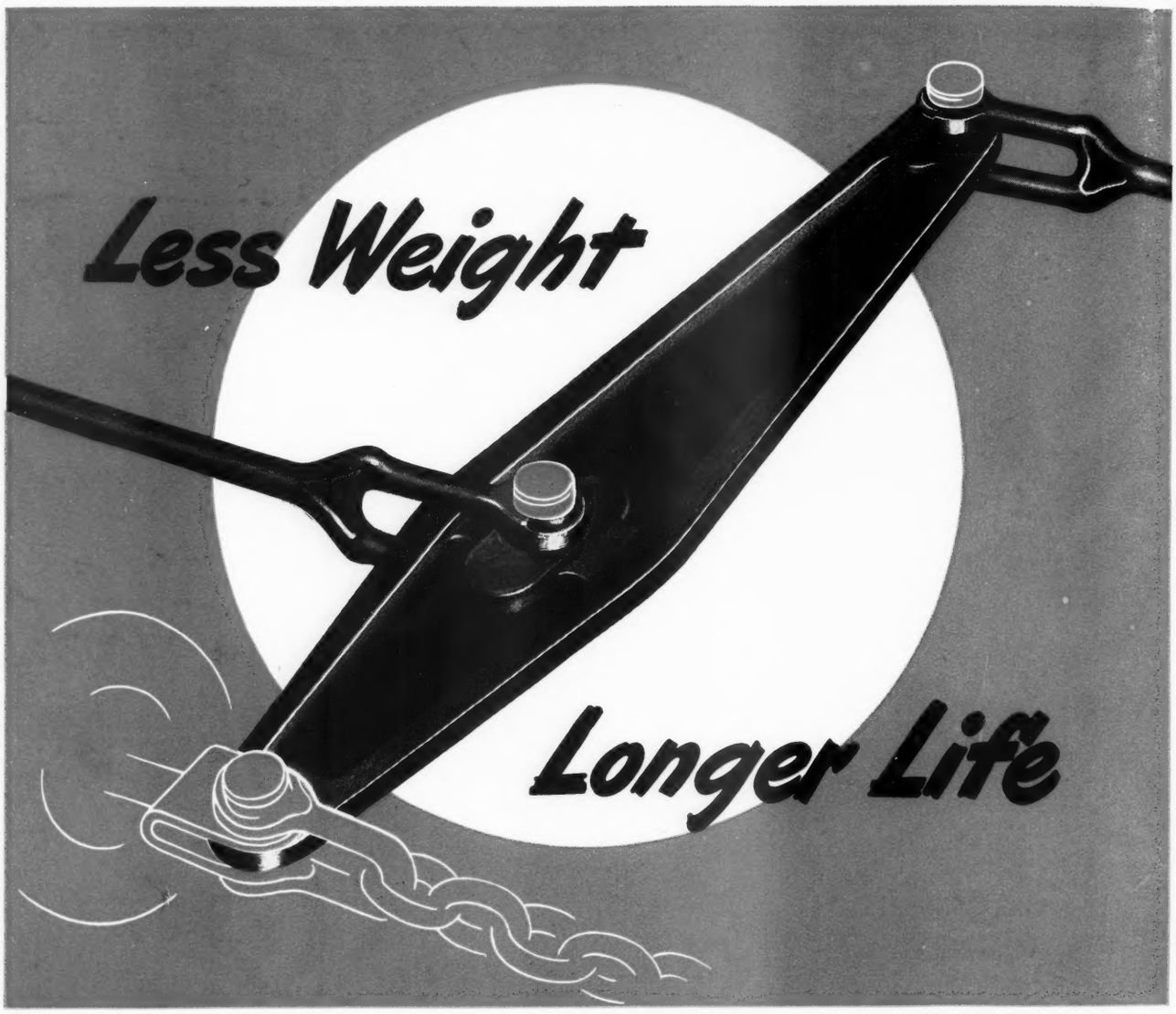

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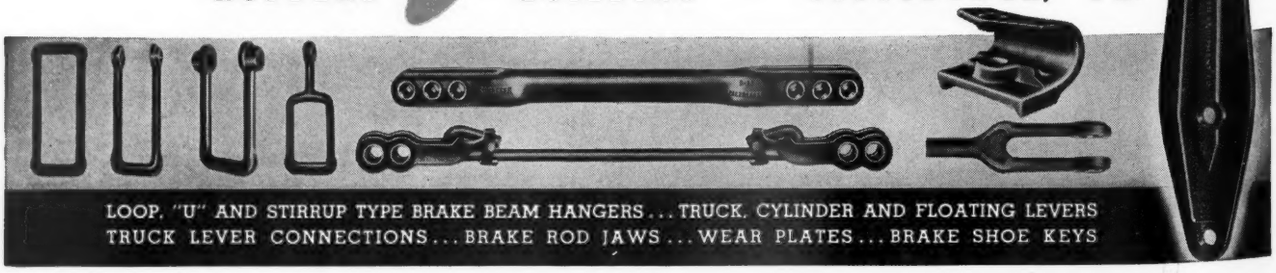

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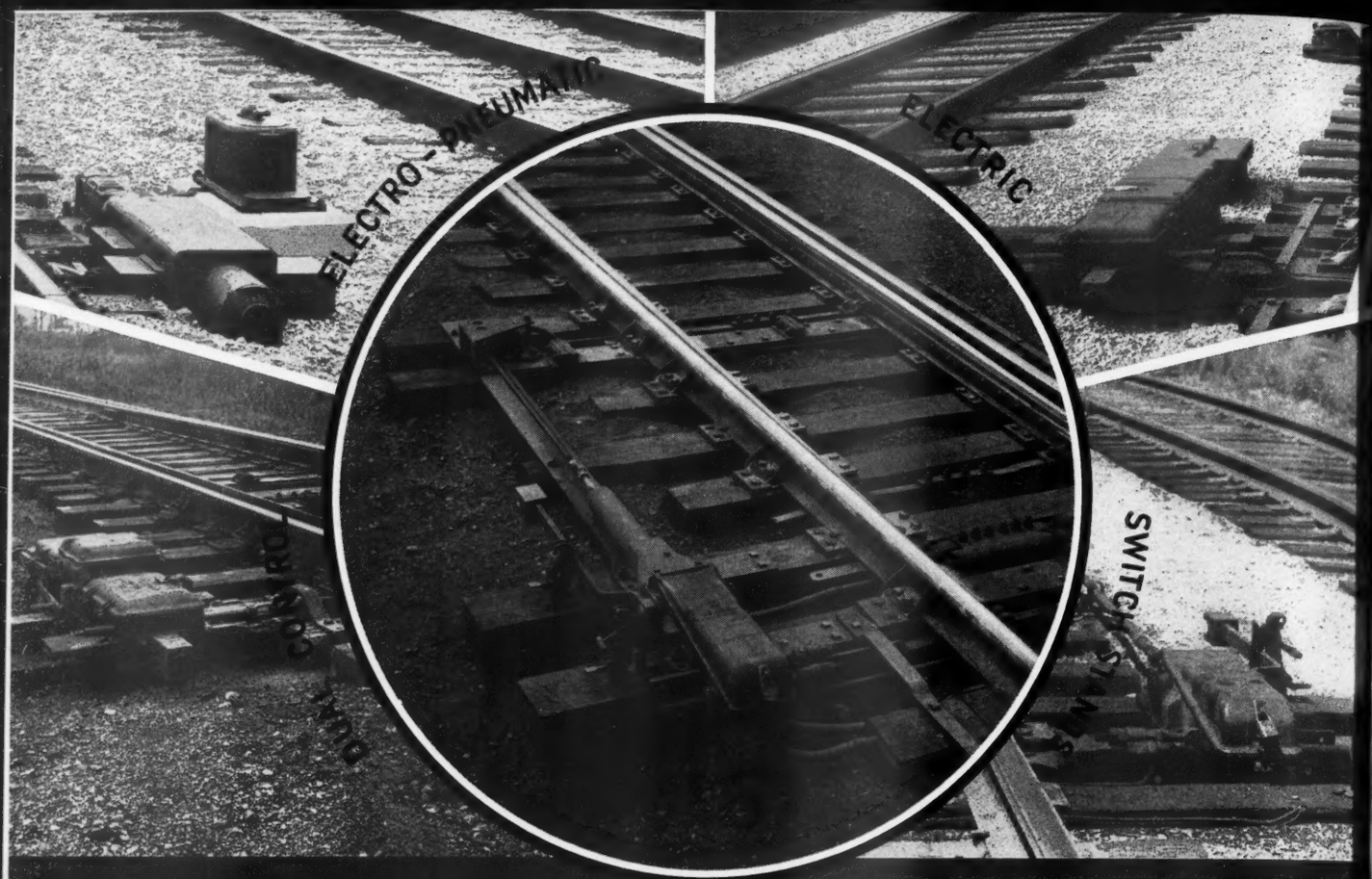
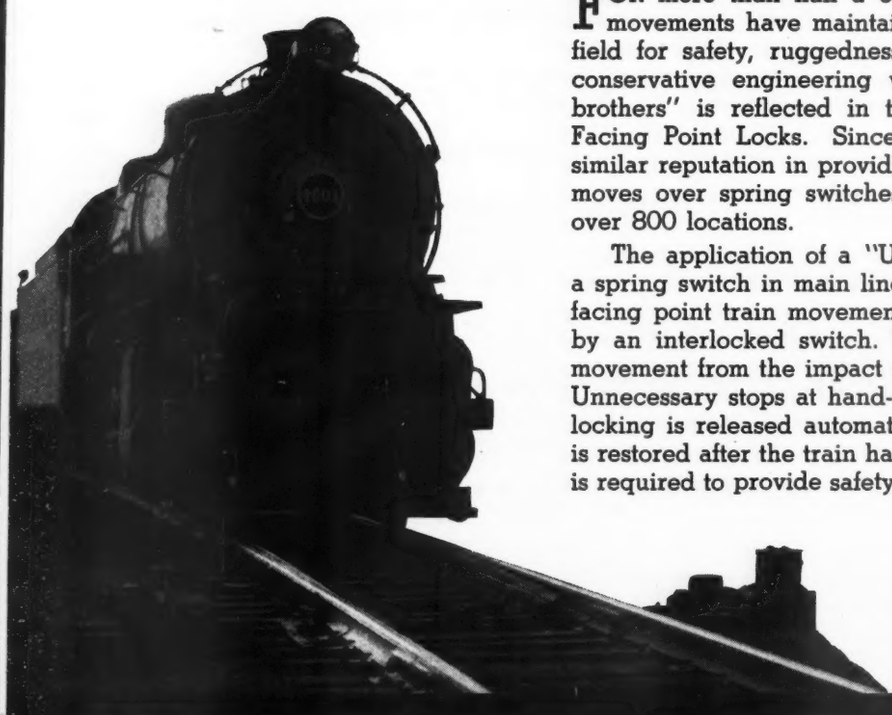


Many years of experience are behind the "Union" Mechanical Facing Point Lock



FOR more than half a century, "Union" power-operated switch movements have maintained their leadership in the interlocking field for safety, ruggedness and reliability. The same expert and conservative engineering which is so characteristic of the "big brothers" is reflected in the design of the "Union" Mechanical Facing Point Locks. Since 1932, these locks have established a similar reputation in providing maximum protection for facing point moves over spring switches. To date, they have been installed at over 800 locations.

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The Week at a Glance

PASSENGER SERVICE: In many parts of the country passenger service has badly deteriorated—and an editorial herein suggests that, difficult as it is to improve conditions, a greater effort in this direction is advisable. These late trains and severe discomforts are making enemies for the railroads—and this industry cannot afford to go into the post-war period with the handicap of public unfriendliness. Aside from more intensive supervision (also, of course, no easy assignment), there is needed more advertising and publicity effort to discourage unnecessary travel.

●

STUDY BOARD TO QUIT?: The Board of Investigation & Research, appointed belatedly and with obvious reluctance by the President under the provisions of the Transportation Act of 1940, is now threatened with an untimely death at the hands of its own parent—Congress. At least, the Board so far has not been able to secure funds to extend its life beyond June 30. If it dies then, the investigations it has so far conducted at an outlay of some $700,000 will be largely wasted effort — because nobody can live in a house, finished all but the roof. An editorial herein raises the question why Congress should be niggardly with a board of its own creation—seeing that it gave Mr. Roosevelt's "planning arm," the National Resources Board, all the money and time it needed to work up a socialistic transportation report, the size of a couple of big city phone books.

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NEW RAIL MALADY: Sloughing off of the metal at the gage corner ("gage-corner shelling") is yet another disease of rail which is attracting growing attention—and the pathology of which is discussed in an article herein. This morbid condition is seldom encountered elsewhere than in the high rails on curves on lines of heavy traffic and is attributed to fatigue. Various possible cures have been proposed, and some of these are being tested. The article relates, particularly, the experience of the Norfolk & Western (it, unfortunately, having had plenty).

●

RAILROAD STOCK PRICES: Market quotations on railroad common stocks reflect no optimism whatever regarding the persistence of present favorable railroad earnings. With 1942 net income at 959 millions, present market prices are only *one-fifth the level of 1929,* when net income was less than 900 millions. An editorial herein invites the attention of the Committee on Economic Development to this situation—as indicating how little confidence, as yet, the investment community has in the post-war prosperity of *the industry which stands on the frontier between capitalism and socialism.* There are just two conditions which can prevent the railroads from reasonable earnings after the war, viz.: (1) a low level of national income and production; (2) the privately-owned railroads rendered profitless by competition of tax-supported rivals, or by a political atmosphere unfavorable to compensatory rates and reasonable wages. Since these are two conditions against which the Committee on Economic Development is contending, in principle, it follows that railroad stock market prices must afford a pretty good barometer of the strength of the campaign to re-establish private enterprise in this country.

●

IS ODT #1 SAVING CARS?: Alvin Vogtle raises this question in a talk reported in the news pages herein. To obey the minimum-load order, he says, cars are being heavily laden to many intermediate break-bulk points, with so much consequent delay that loaded car-days may be as many as before—even though the statistics look better. He doesn't make this as an assertion, but as a suspicion—one which we expressed, incidentally, when the order was first broached. But the figures looked so alluring for a while that, as long as cars weren't actually short, few were inclined to peer at them critically.

●

HOW W. P. DOES IT: The single-track Western Pacific has an operating problem, which anyone who senses its situation can easily surmise. Just what, specifically, this problem is, in its variegated details, and how the management has tackled the task (with a large measure of success too) is reported by our transportation editor in an illustrated article herein. An increase of 100 per cent in freight traffic on a mountain railroad, with the direction of traffic reversed, affords exercise worthy of the highest skill and the most supple ingenuity.

●

BIGGER & BETTER CANALS: The Army Engineers are all set to pump-prime the country into prosperity again, after the war, by providing many more miles of channels in which the barges of alleged "private" enterprise can get its transportation at the taxpayers' expense. There are $215,000,000 worth of such projects now on the books, Major General Reybold told a House appropriations subcommittee—as reported in the news pages herein. Also recorded is the colloquy which went on regarding the proposed Florida Barge Canal. General Reybold held firm to his previous declaration that it would take two years to do this job, while Retired-General Summerall — who has a job with Florida waterway interests —insists that a mere ten months would see this task completed.

●

STATUS OF WOMEN: The union leaders, at the ODT manpower meeting this week, insisted that women hired to do men's work on the railroads must be paid men's wages. The labor magnates, however, do not want employees of the gentler sex to get their names on seniority lists—enabling them to hold their jobs after the war. They insist that the girls are not really suited to railroad work—a contention which, when combined with the demand for equal pay, simmers down to "equal pay for unequal work."

GOVERNMENT TRAVEL: A system of simpler accounting for transportation provided under government travel orders has been developed by the Southern, and is described—with illustrations of forms used—in an article elsewhere in this issue.

●

WHY THRIFT IS NECESSARY: The really desperate need of the railroads for investment money, following the war, to modernize their facilities to meet the unquestionably dangerous forthcoming assaults of competitors, was outlined by John Barriger in his testimony to the non-op emergency board, reported herein. The war is proving a gigantic laboratory for the improvement of competitors' technique—and is also providing a large supply of competitive transportation material, probably available at bargain prices after the war to compete against the railroads. Without putting forth the very best that is in them, the railroads are in for a tough time—and they had better have some funds on hand with which to improve themselves, or their outlook will be still more hazardous. Is this prospect one of less importance to railroad employees than their zeal for extra money in their pay checks now?

●

POWER & RESPONSIBILITY: The position of the unions—in their insistence on immediate gains without thought of the means necessary to sustain the future employing power of the railroads, or their self-interest in assuring a "subsistence wage" to capital—is reminiscent of that of Englishmen to the American colonies prior to 1776. They did not understand the colonies' problems, and were not interested in learning. In Franklin's words, what they demanded was "omnipotence without omniscience."

●

TRANSPORT FOR A. E. F.: Serious misgivings as to the adequacy of the Army's provision for land transportation in the war overseas were expressed by Arthur Krock, New York Times Washington correspondent, on March 21—his doubts being documented from a memorandum he had seen by Col. W. J. Wilgus—who was close to the top in A. E. F. transportation in the last war. Our inquiry to Col. Wilgus brought the reply that copy of his memorandum was "not available." In a general way, the questions raised by Mr. Krock parallel those of an editorial in the February 20 issue of this paper, page 393—the difference being that Mr. Krock and Col. Wilgus appear more convinced than we are of the actual existence of the shortcomings they suspect. Our position was and is, merely, that no information is available with which to dispel such misgivings—and that they are plausible.

●

CARS FOR TROOPS: 1,200 sleeping cars and 400 kitchen cars, of special construction, for exclusive army use and financed by the government, was a proposal scheduled for discussion by the A. A. R. member roads at their March 26 Chicago meeting.

PREVENT BOTTLENECKS

(Between 1938 and 1942, average revenue carloads handled monthly by T.R.R.A. of St. Louis increased 100 percent — and no bottlenecks. 28 Diesel switchers, 9 of which are General Motors, did the trick.)

WITH

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Efficiency FOR VICTORY

Deterioration of Passenger Service

What is occurring now in many passenger stations and on many passenger trains bodes ill for railway passenger traffic after the war, and is not improving public sentiment toward the railways.

Millions are traveling by rail who have not done so for years, or never did before. They stand in long lines in ticket offices or stations before they can buy tickets. They wait long periods, often hours, in crowded stations or on crowded platforms for trains that are late. They find cars, especially coaches, overcrowded, and often dirty. They wait in long lines before they can get into dining cars, and often are actually unable to get meals at all. They see trains already late become later and later as they are delayed at stations, and wonder what causes these long delays and why more is not done to prevent them. Finally, they often arrive late—perhaps hours late—at destination, tired, disgusted, and resolved never to travel by rail again when they can travel any other way.

Railway officers and employees cannot afford philosophically to regard such handling of passengers as the inevitable fortunes of war. They will much more wisely investigate thoroughly all the causes of present shortcomings of service, and make herculean efforts to stop its deterioration and improve it.

The way millions of passengers are being handled is giving them a wholly false impression regarding the efficiency and comfort with which passengers are normally handled, and therefore regarding the normal efficiency of railway operation. This will tend not only to make them avoid trains after the war, but, worse still, to feel unfriendly toward the railways. And the opinions of passengers are of vital importance, because there are so many of them; they are from every community and from all the walks of life; and therefore have immense political power.

There is strong evidence of need for more and closer official supervision of passenger service. The number of supervisory officers was reduced by most railways during the depression and never has been restored. Marvels are being accomplished in spite of this in handling passengers as well as freight. But nobody familiar with railway operation, and who recently has traveled widely, can fail to have observed that passenger service has been increasingly suffering, since the great increase in travel by rail began, from lack of sufficient intelligent official supervision. It is very difficult under present conditions to increase supervision; but because an important problem is difficult is no reason for not resolutely attacking it.

There is need also for more sales and advertising effort to reduce unnecessary traveling. In some territories every person who now makes an unnecessary trip by rail does the railways injury. What he pays them is more than offset by the trouble he causes those traveling for necessary purposes, and by the contribution he thereby makes to an unhealthy public sentiment. The railways need earnings now much less than they will need a favorable public opinion later. To insure as well as practicable a future favorable public opinion, they should spare no reasonable effort or expenditure to warn the public of the inconveniences, discomforts, and even privations it may experience in traveling during the war, and to influence as many as they can to stay off trains.

Need for Broader Material Specifications

Although the procurement of railway materials and equipment is governed to a large extent by specifications, their use and application need not imply that in all instances the materials specified are those best suited to the purpose for which they are intended; nor will their use in all instances assure ultimate economy. A specification has been defined as a definition of the quality or design of workmanship or of process that is required, or a statement prescribing the details of a plan. Fundamentally, the principle underlying purchase specifications is sound; but, in many instances, somewhere between the theory and its practical application an incident or a series of incidents may occur to abrogate the purpose of the specifications.

Many of the materials, tools and appliances that are generally used by the railways are also common to American industry at large. And yet, many individual railway specifications are hedged about by restrictive clauses that preclude the possibility of utilizing trade standards, with the result that railway requirements must be manufactured in comparatively small quantities and at relatively high costs. On the other hand, many of these manufacturers' products are made to standards or specifications whose value has been established through broad distribution and use. Their trademarks are the manufacturers' guarantee of quality which has been developed through years of successful experience in meeting the requirements of their markets.

The railroad officer who is most intimately associated with the application and use of specific products of this type is the person best fitted to define their service requirements. But in most instances he has at best a superficial knowledge of the selection of raw materials, their formulation and the fabrication entering into the manufacturing processes. Reputable manufacturers have the advantage of research and control laboratories devoted exclusively to the study of specific subjects related directly to their products. Many of their supervisory officers and craftsmen have spent years in producing and perfecting their products. Competitive marketing and user reaction from extensive territories also have had their influence on the products. For the most part the quality of trade name products has undergone a progressive change as a result of many refinements of formulation and manufacturing processes; while mass production assures ultimate economy in their production costs.

Trade name materials, tools and appliances also offer additional advantages to purchases and stores departments from the standpoints of elapsed time between the preparation of a requisition and the delivery of the order and of availability for prompt distribution in standard packages from local warehouses or distribution centers. And in many instances all of these advantages may be attained by replacing restrictive individual specifications with revised editions based primarily upon service requirements, and broad enough in other respects to provide a competitive choice between several well established products manufactured to the producers' standards.

Cinderella

Congress will do a great disservice to its own prerogative and the nation's growing reliance upon it for responsible leadership in the conduct of vital public business, if it permits its Board of Investigation and Research into Transportation to expire on June 30—which will happen unless a further appropriation is granted.

The legislative branch is properly resentful at the bumptious assertiveness of the National Resources Planning Board—a non-statutory body which has assumed the role of "planning arm" for the entire economic life of the country. The establishment of policies to protect and advance the nation's social and economic welfare are the proper function of Congress—not that of an Administrative group to which no authority has been delegated by the Legislature, and in the selection of the members of which it has no voice. However, the corral into which Congress has rounded-up these self-anointed oracles, preparatory to administering condign chastisement, appears to have caught an innocent victim—to wit, the Board of Investigation and Research.

For the Board of Investigation and Research is Congress' own baby. It is certainly no pet of the Administration's—which, indeed, set its National Resources Planning Board to report on transportation, in open contempt of the action of Congress in assigning this function to its own statutory Board. Establishment of the Board was called for in the Transportation Act of 1940. President Roosevelt was so little impressed with this Congressional enterprise that he made no move to appoint the Board's three members until six months after the Act had been approved, and then his nominees were not confirmed. Some months later he substituted other nominations, and these were approved in August, 1941, eleven months after the passage of the Act.

Thus, the Board was a year late in getting started and will have had less than two years' life on June 30, this year. It cannot possibly in so short a time complete its report in a form likely to be a useful guide to Congress and the nation in wisely resolving vexing questions of policy toward transportation. If given an appropriation to permit it to continue functioning until the end of its statutory life (September 18, 1944), the Board will, on the other hand, be able to reduce the results of its extensive investigations to the form of reasoned and understandable recommendations. We are hopeful that some, at least, of its findings may be informative and helpful.

This paper shares the hostility of many Congressmen to bureaucratic "planning" of the economic life of the country. In the realm of private enterprise, most if not all the "planning" should be left to private owners and managers. But transportation has become to a large degree a government undertaking—and there is certainly every sound reason why the government should have an orderly plan and a consistent policy *for its own business,* which it does not now have for its transportation ventures. Congress will add to its growing luster in intelligent public esteem if it permits the Board of Investigation and Research to fulfill its important statutory functions.

What Stock Prices Mean

The "railroad problem" might be accurately defined as the task of restoring the prices of railroad common stocks from the present average of a little better than 30 on the Dow-Jones index to the average of 100 or more which prevailed in 1925-30, and, quite generally, from the beginning of the present century until 1917. Such restoration is the problem because, unless it is accomplished, there can be no financing of large-scale railroad improvements through the sale of stock—and, until this can be done, the railroads must fight a frugal, defensive battle in modernizing themselves to meet the competition of the newer agencies of transportation. Until the railroads have assurance of ability to carry on more than merely a defensive engagement they cannot be relied on to contribute, as otherwise they might, to postwar employment and economic activity.

The persistence of bankruptcy prices for railroad common stocks arises, clearly, from lack of confidence by investors in the future which politics will permit to private enterprise in transportation. This is instantly apparent when present ridiculous—even tragic—common stock prices are compared with the Class I railways' net income of $959 million in 1942, the largest in history. In 1929, when Class I net income was not quite $900 million, the Dow-Jones railway stock price average was five times higher than now. The investment community has been given over-abundant reason to believe that such earnings—or anything like them—will be given no chance to persist. The current assault by the OPA on the lowest average railroad rates in a generation (9.32 mills per ton-mile in 1942) and the effort by organized railroad labor to push still higher its wage rates, already 30 per cent above those of 1929, would alone be sufficient to make investors hesitant about commitment of funds to the railroads.

And, unfortunately, this "pincers attack" (seeking simultaneously to deplete revenue and increase expense) is not alone in affecting investors' confidence. The Interstate Commerce Commission has ordered the reorganization of roads once insolvent (but no longer so, on the basis of current earnings) in a manner to deprive their present stockholders of any further participation in earnings or ownership; and the Supreme Court has just placed its approval on this expropriation. Small wonder that other equity-holders should be wanting in confidence, when the I.C.C. and the Supreme Court collaborate in so pessimistic an estimate of future railroad traffic and earnings, and in giving such short shrift to equity claims.

The prospects of the railroads are not materially better or worse than those of the common run of private enterprise. Business leaders are widely recognizing the probability, unless private business can give employment to returning soldiers and disengaged war workers when hostilities cease, that politics will lead the nation into some such "mixed economy" experiment as that proposed by the National Resources Planning Board, which probably would destroy most private enterprise and lead to national bankruptcy. Through the Committee on Economic Development and otherwise, business leaders are endeavoring to assure that private enterprise will be prepared to assume the task of providing postwar employment. In any event, it appears extremely unlikely that national production and income in the years immediately following the war will return to the disastrous level of the 'Thirties. If annual national income remains at more than 100 billion dollars, there cannot fail to be a large volume of traffic which the railroads can most efficiently and economically handle. Whether they will *profitably* handle it will depend largely upon the political atmosphere—whether it is friendly or inimical to profits in private enterprise.

Members of the Committee on Economic Development may well keep their eyes on the prices of railroad common stocks. No other industry is more threatened with competition from present and prospective public "investment." The prices of its common stocks, therefore, serve as a good barometer for indicating what kind of weather investors believe is ahead for business in general.

In Next Week's Railway Age

Among other timely articles and editorials, and the reports of current news developments, the following articles of special significance are scheduled for our April 3 issue:

The 31 Welded Passenger Cars the Milwaukee Built in 1942 — Described with Special Attention to Truck Development, Interesting Accessorial Features, and Construction Methods.

Extensive Class-Room Job Training Being Provided for New York Central Employees and Supervisors — How Thousands Are Improving Their Professional Technique, Following Company Encouragement and Use of Local Educational Facilities.

How the Western Pacific Handles Ever-Increasing Wartime Traffic

Increased business for strategic areas and serious manpower shortage create many problems

IN 1938, the Western Pacific handled an average of 399,000,000 gross ton-miles of freight monthly. In 1942, this average mounted to 813,000,000, an increase of more than 100 per cent. In 1938, the peak month of October produced 610,000,000 gross ton-miles, whereas the same month in 1942 produced 1,041,000,000 gross ton-miles. The trends of this rapidly increasing traffic are presented in graphic form in Fig. 1. Meanwhile, passenger traffic has been increasing by fantastic percentages. Passenger revenues were 610 per cent greater in 1942 than in 1938; they were 195 per cent greater than in 1941.

The problems of handling such unprecedented traffic on what is essentially a single-track railway have been many and difficult, particularly with shortages in materials and manpower. As on all of the railways serving the Pacific Coast, there have been delays and interruptions to commercial traffic, but the military traffic has gone through and, with few exceptions, the W. P. has been able to handle all other traffic offered. The principal reason for this performance is that, during the past decade, despite the depression and the fact that the road was in trusteeship, an extraordinary amount of work was done on roadbed, track, shops, terminal facilities and rolling stock—which increased its capacity and operating efficiency. The Western Pacific plans still more improvements for 1943, if the materials can be secured.

A Mountain Railroad

The Western Pacific operates 1,195 miles of line between Oakland, Calif., and Salt Lake City, with a connection also with the Great Northern in California which gives it an outlet to the Pacific Northwest, as shown in Fig. 2. Leaving Oakland at sea level, the line crosses the Coast range on an 0.8 per cent grade eastbound and 1 per cent westbound. It then enters the Feather River canyon at Oroville and climbs from that point up a practically continuous 1 per cent grade for 135 miles to a summit elevation of 5,018 ft. in Chilcoot tunnel, near Reno Junction. From that point it descends the east slope of the Sierra Nevada mountains onto the Nevada plateau; after crossing Flower Lake Summit, 5,909 ft., it again descends to Salt Lake City at an elevation of 4,200 ft. above sea level. Despite the mountainous territory traversed, the ruling grade in each direction is only 1 per cent, as shown in Fig. 3.

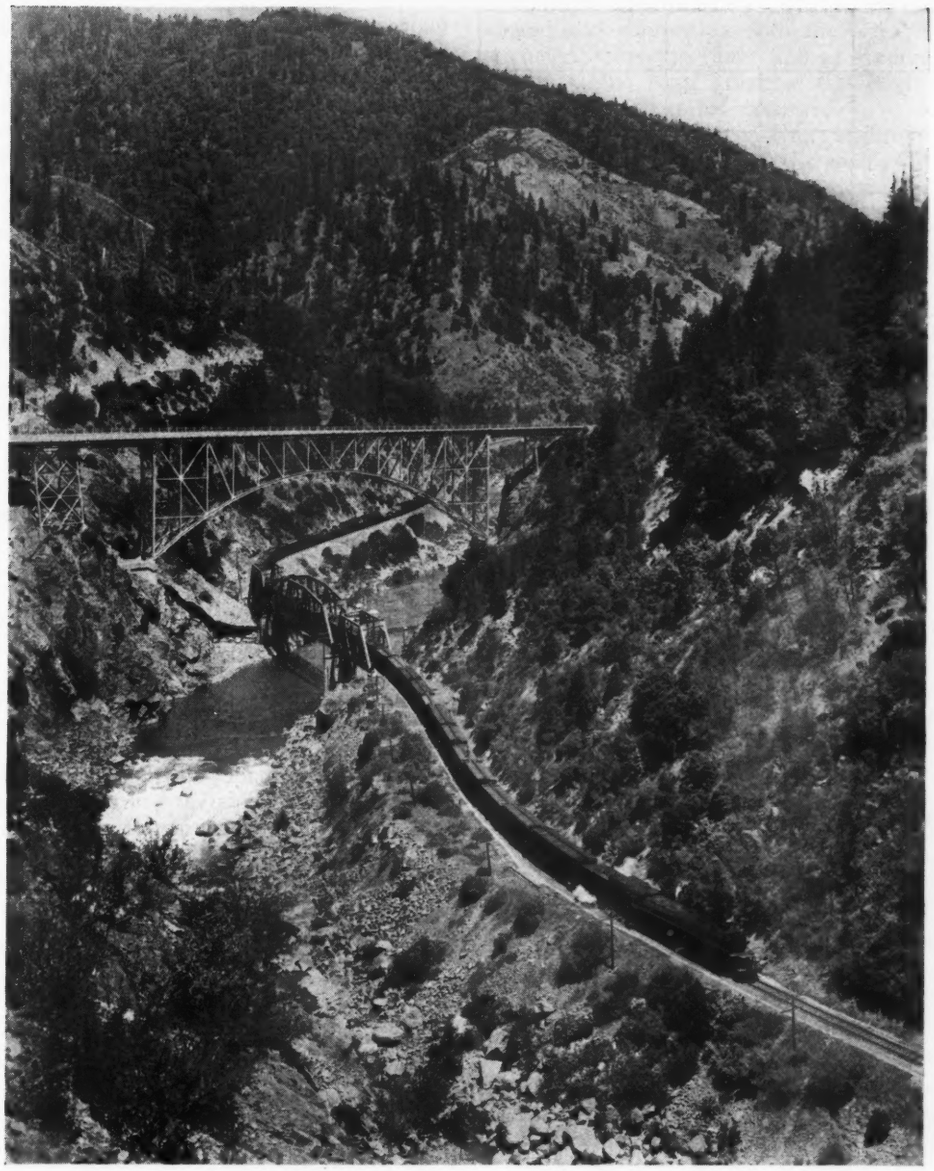
The connection with the Great Northern extends from Keddie, Calif., in the Feather River canyon, north to Bieber, Calif., 112 miles. This line climbs out of the canyon from an elevation of 3,210 ft. to a summit of 5,732 ft. at Norvell, then drops down into Bieber at 4,120 ft. The ruling grades on this line are 2.2 per cent northbound and 1.8 per cent southbound. Traffic on this Northern California extension has shown increases similar to those on the main line. Completed in 1931, this line handled 13,759 cars in 1932, and only 47,742 cars were handled as late as 1940. This increased to 68,120 cars in 1941, and more than 100,000 cars were handled last year.

Features of W. P. Operations

For operating purposes, the W. P. is divided into two divisions. The Western division extends from Oakland, Calif., to Portola, and includes the Northern California extension as well as several branch lines. The Eastern division extends from Portola to Salt Lake City and, except for the 33-mile branch to Reno, includes only a few short branches. Both divisions are single-track—although a "paired-track" agreement with the Southern Pacific is in effect for 177.7 miles between Weso, Nev., and Alazon. Under this arrangement, the W. P. track is used for all eastbound trains of both railways, and the S. P. track is used similarly in the opposite direction.

The movement of such an extraordinary increase in traffic has required numerous additions to the operating department supervisory forces. Two new positions—assistant superintendent of transportation, and superintendent of car service—have been created and several additional transportation inspectors have been appointed. Additional sets of train dispatchers have been put on at Sacramento, Calif., and Elko, Nev., while a completely new set has been installed at Keddie, Calif., primarily to assist in handling the largely increased business on the Northern California extension. A new assistant superintendent, four new trainmasters and four assistant trainmasters have also been appointed. The number of road foremen of engines has been doubled to assist in obtaining greater locomotive utilization.

One of the limiting factors inherent in mountain operations, even where the maximum grade is only 1 per cent, is the necessity for helper service. Figure 3 shows the long stretches of the W. P. on which helper service was originally required. The two principal helper districts were in the 116-mile Feather River canyon and on the 60-mile Wendover hill. Subsequently, the canyon district was provided with 10 large 2-8-8-2 simple Mallets having a tractive force, with boosters, of 150,000 lb. Wendover hill was provided with seven 4-6-6-4 simple Mallets having a tractive force, without booster, of 99,600 lb. Under normal conditions, these locomotives handled the principal trains without helpers, but, under present traffic loads, much helper service is required. During 1942, nearly 17 per cent of the road's total locomotive-miles represented helper-miles. The W. P. also operates three 5,400 hp. Diesel-electric freight locomotives as a "flying squadron," which can be used anywhere on the line as conditions require. The W. P. owns 150 road locomotives which, with 10 locomotives leased from other roads, are constantly in use except when repairs are necessary. Under such conditions, the



The Main Line of the Western Pacific Traverses Feather River Canyon for More Than 100 Miles

utmost utilization of all locomotives is essential. That the W. P. is achieving this is indicated by the statistics. The following statement shows the steadily increasing gross ton-miles produced by locomotives in relation to the aggregate tractive power of road locomotives owned:

Year	No. of Road Locos.	Aggregate Tractive Power-Lb.	Total Gross Ton-Miles
1938	140	7,378,200	4,787,000,000
1939	151	8,623,400	5,252,000,000
1940	147	8,447,400	5,879,000,000
1941	147	8,447,400	7,632,000,000
1942	150	9,122,400	9,759,000,000

The government has advised the W. P. to prepare for materially increased traffic in 1943, and, in anticipation, the aggregate tractive power will be increased to 10,182,600 lb., when three additional Diesel-electric road freight locomotives and six new 4-8-4 steam locomotives now on order are delivered.

A steady increase has been shown in locomotive-miles per active locomotive day. Passenger locomotives were averaging less than 150 miles in 1939, whereas, in 1942, they averaged 254 miles per day, an increase of 66 per cent in effective utilization. Meanwhile, the miles per day of freight locomotives increased as follows: 1939, 101.4; 1940, 112.2; 1941, 128.2; 1942, 130.9.

The extraordinary traffic incident to war activities and the necessity for utilizing the transportation plant to the utmost naturally made it necessary to give every locomotive as much as it could handle, consistent with keeping train movements fluid at all times. Figure 4, showing the average tonnage per freight train, reveals a jump from slightly less than 900 in 1941 to 1,118 tons per train in 1942. Naturally, handling more than 200 tons of additional freight had its effect upon average freight train speed, which dropped from 19.8 m. p. h. in 1941 to 16.6 in 1942. This reduction was, of course, not all due to increased tonnage, for some of it was attributable to more delay on sidings because of the greater number of trains being operated on a single-track railway.

It is worth noting in this connection that this reduced speed has not affected the upward trend of miles per car per day that has been apparent on the W. P. for some years, for this figure averaged 68.7 miles for serviceable cars in 1942, as compared with 68 in 1941 and 66 in 1940. The average figure for all cars was 66.8 in 1942

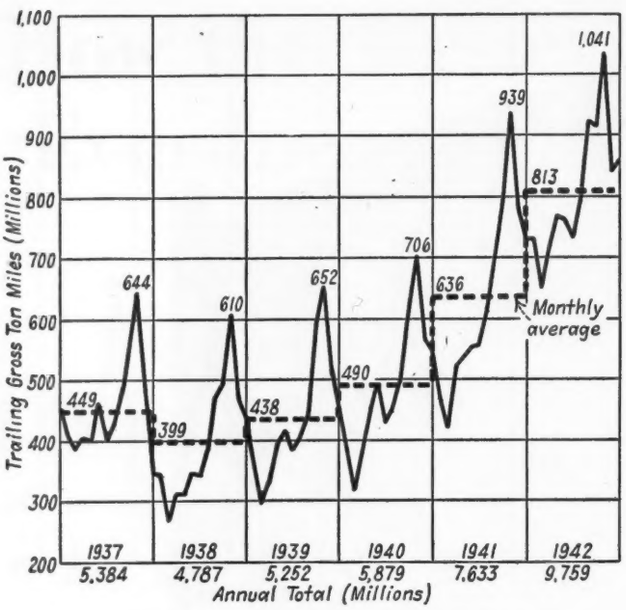


Fig. 1. The Rise in Traffic on the Western Pacific

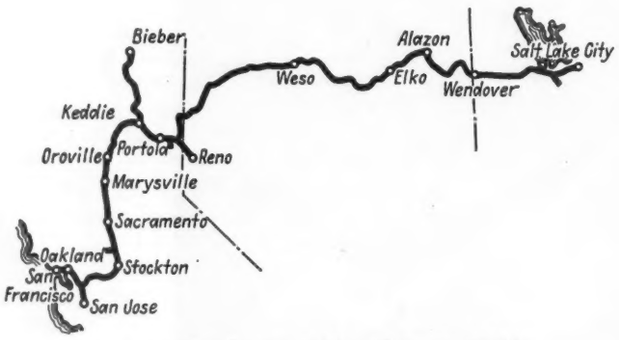


Fig. 2. The Route of the Western Pacific

and 65.4 in 1941. This spread of less than two miles between the figures for serviceable cars suggests the extent to which bad order cars have been reduced.

Diesel-Electric Locomotives Helped

The three road freight Diesel-electric locomotives installed in 1942 have been of material assistance in handling the increased traffic and, when the three additional ones that are now on order are received, many problems will be solved. To insure maximum utilization of these locomotives, as well as of the fleet of Diesel-electric switchers, an assistant superintendent of motive power has been appointed in charge of Diesels and a shop has been established at Oroville for their care and maintenance. Road Diesels are handled under a progressive maintenance system. They make a round-trip from Oroville to Salt Lake City, 1,450 miles. As soon as they arrive at Oroville, they are sent through the canyon to Portola and back, 232 miles. On their return to Oroville, they are put in the shop for any necessary maintenance work. It is believed that this periodical maintenance will avoid frequent general overhauling and that much greater utilization will be had also from the locomotives under the progressive maintenance plan than if they are permitted to run constantly until general overhauling is necessary.

Terminal Operations Increase

As with other transcontinental lines, the W. P. has had to revise its operations since the war reversed the normal direction of loaded movement. This has always been predominantly eastbound until the last 12 months, when the direction of ruling traffic reversed itself. Under the stress of getting the wartime business from Salt Lake City to the Coast, the Southern Pacific and the W. P. work together and, insofar as they are able, they help one another as the occasion demands.

The yard used by the W. P. at Salt Lake City (Roper) is owned and operated by the Denver & Rio Grande Western and that railway supplies most of the interchange for the W. P. Other important yards are situated at Elko, Nev., Portola, Calif., Keddie, Oroville and Sacramento, but the largest yard is at Stockton, where interchange is made with both the Southern Pacific and the Santa Fe. This yard is now handling about 60,000 cars a month, an increase of more than 100 per cent in the last two years. The W. P. also operates a yard in Oakland, from which business for San Francisco proper is floated across the bay by car barges and tugs. The W. P. operates its own yard in San Francisco, as well as industry tracks and freighthouses and operates switch engines there. However, cars intended for delivery on the State Belt, which serves many San Francisco industries, are delivered directly to this railroad from the car barges. The W. P. faces a shortage of yard power in 1943 that may well prove serious unless delivery of eight new Diesel-electric switchers can be obtained. Figure 5 illustrates the steeply mounting increase in yard switching locomotive-hours. At present, the W. P. owns 16 steam 0-6-0 switchers and three 600-hp. and eight 660-hp. Diesel-electric switchers. These 27 switchers are not adequate to the demand, as is indicated by the fact that the W. P. had to divert six road locomotives to yard service during the peak period last October and is using six such locomotives regularly in yard service now.

Moreover, the W. P. yards are certain to be busier than ever in 1943. For one thing, the government has warned the Pacific Coast lines of more traffic to come. War production industries are plentiful on the W. P., some just going into production, which means more

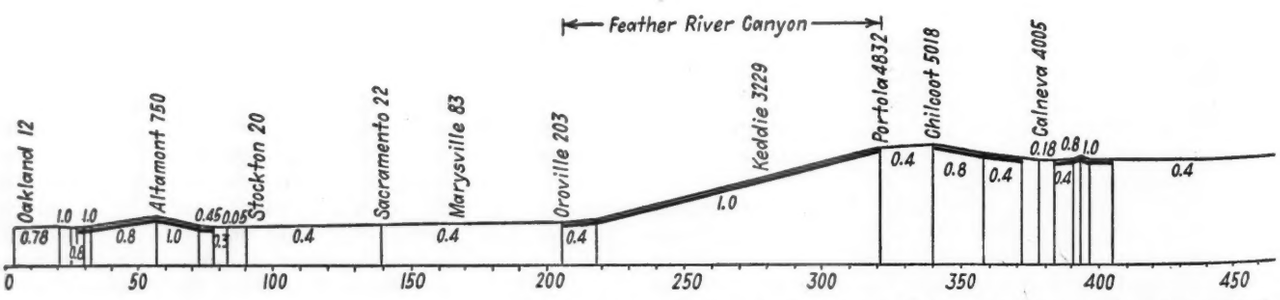


Fig. 3. Despite the Mountainous Territory Traversed, the Ruling Grade

switching. Also, on May 1, the W. P. will have to take its turn for one year in operating the Port of Stockton terminal, which requires four yard engines.

The W. P. has been making every effort to enlarge its yard facilities to handle the expanding business. Its yards at Oakland, Stockton, Sacramento, Oroville, Portola and Elko have been enlarged materially. The yard at Oakland is being extended to hold 600 additional cars, these new facilities being owned by the government but operated by the W. P. A similar extension providing for 1,600 cars additional is being considered at Stockton. Jointly with the Santa Fe, the W. P. has formed the Oakland Terminal Railway to take over the freight facilities of the Oakland Terminal Railroad, now a Key System subsidiary.

A Good Roadbed

A steady program of improvement in the last ten years has put the W. P. tracks in shape to handle heavy business. The main line contains more than 700 miles of 100-lb. and 112-lb. rail. Last year, 45 miles of new 112-lb. rail were laid on the Northern California extension. The continuance of a satisfactory maintenance program is seriously threatened, however, by shortages of men and materials. Only 40 per cent of the 1942 tie renewal program was completed, largely because the complete output of one of the two chief sources of ties on which the W. P. depends was taken over by government agencies. As fast as labor and materials are available, the W. P. is continuing its program of lengthening passing tracks.

The railway has also spent considerable money in diverting streams and widening water openings under tracks across the desert to prevent interruptions to traffic in districts where cloudbursts occur.

From a maintenance standpoint, however, the 116-mile district between Oroville and Portola, which clings first to one side and then the other of the famous Feather River Canyon, offers by far the greatest variety of problems. The line is here located on an almost continuous 1 per cent grade through extremely rugged country. The total curvature aggregates more than 16,000 deg. of central angle and results in a total of 70 miles of curved track, or some 60 per cent of the district, with a maximum curvature of 10 deg. In order to maintain the uniformity of gradient, one loop was required which has over 403 deg. of central angle, or 43 deg. more than a complete circle.

The original valuation docket of the Interstate Commerce Commission stated that "the cost of building this road from Chilcoot to Oroville is probably not exceeded by the cost of the same length of any other railroad in the United States."

The original main line traffic has been augmented since 1931 by traffic from the Northern California extension and connection with the Great Northern. The extension joins the main line at Keddie in the canyon and its traffic must traverse the canyon for 76 miles westward or 40 miles eastward.

Although the Feather River canyon is not normally a region of heavy snowfall at the road's elevation, the high ranges surrounding the canyon are subject to heavy

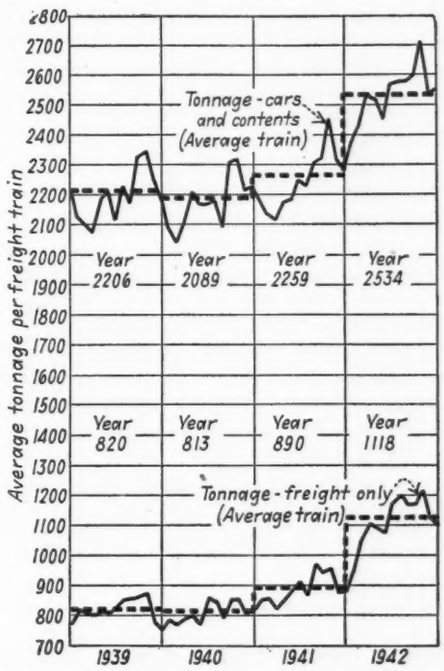


Fig. 4. Average Tonnage Per Freight Train

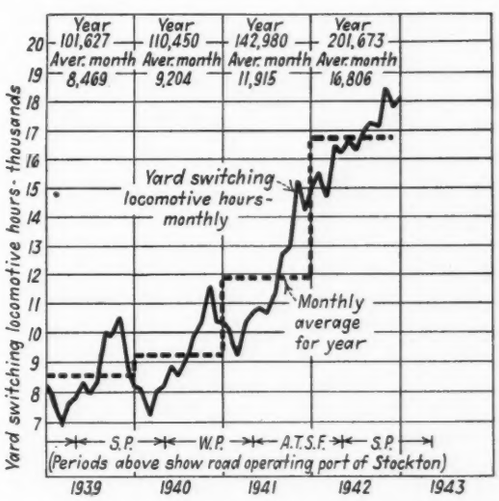
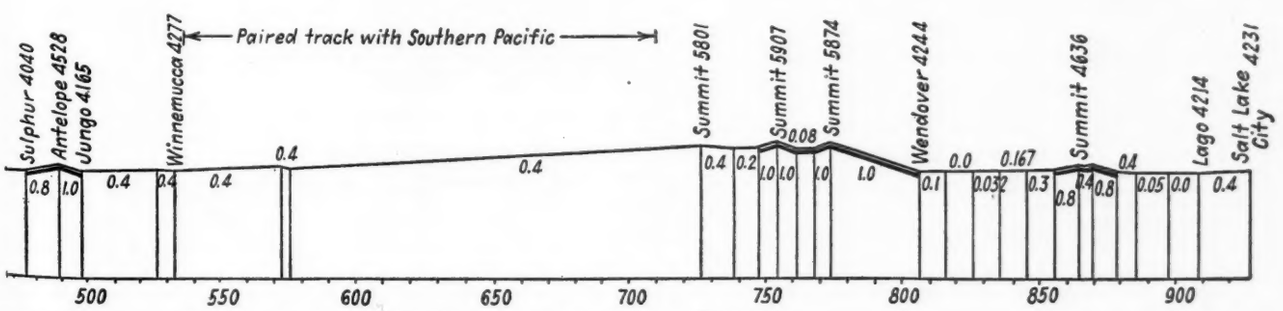


Fig. 5. Yard Engine-Hours Show Rapid Increase



on the W. P. Is Only One Per Cent (Double Lines Indicate Helper Grades)

snowfall, with the result that disposition of water drainage and protection against slides is a problem which had had preferred attention for many years, in addition to protection of the line from the Feather river when at high water stage. The accumulated results of years of attention to the problems involved have "tamed" the canyon to a large degree, so that interruptions to service do not occur except under extraordinary storm conditions—whereas, in the early days of operation, interruptions of from one week to 10 days were not uncommon. The canyon district is laid with 112-lb. rail throughout, is fully ballasted with crushed rock and, despite the difficulty of the terrain, is supplied with 25 passing tracks and with complete yard facilities at Keddie.

Wherever possible, the numerous culverts are built on a 20 per cent grade, so that boulders and other materials will pass through them. T-rails are embedded in the concrete at the upstream ends to provide protection against the impact and erosion of boulders which have occasionally worn out the concrete in a single season. Some skid culverts of this construction have now been in service four years without showing signs of undue wear. At places where a 20 per cent grade is impossible, grillages of T-rail are built at some distance from the track on the uphill side to keep boulders and debris from entering and clogging the culvert. Such debris is then removed with a dragline after the rainy season is over. Depending upon their location, the culverts are 8 ft. by 8 ft., 10 ft. by 10 ft., or 12 ft. by 12 ft. in cross section. The Northern California extension also traverses particularly rugged country and, for 25 miles, is at an elevation of 5,700 ft., in an area subject to heavy snowfall.

Freight Solicitors Now Ride Troop Trains

As stated, passenger revenues have increased more than 610 per cent on the W. P. in four years. Until recently, a large percentage of the W. P. passengers were traveling for pleasure and, to please them, the Exposition Flyer was operated through the scenic canyon in the daytime, arriving in Oakland at night. However, a recent check disclosed that only a small percentage of the passengers are now pleasure travelers and, since business men prefer to arrive at their destination in the morning, the scenic beauties of the canyon have been forgotten for the duration and the schedule of the Exposition Flyer has been changed accordingly.

To handle the heavy troop movements effectively, a military bureau has been established by the passenger department, and former off-line freight traffic solicitors are now riding troop trains. In addition to special train movements, the Exposition Flyer handles one or more cars of troops daily. The regular passengers consist substantially of officers and soldiers traveling under orders or on furloughs. In addition to troops, the W. P. also has handled special trains of laborers en route to Pacific Coast war production plants.

Selected Income and Balance-Sheet Items of Class I Steam Railways in the United States

Compiled from 132 Reports (Form IBS) Representing 136 Steam Railways

(Switching and Terminal Companies Not Included)

Income Items	All Class I Railways — For the month of December 1942	For the month of December 1941	For the twelve months of 1942	For the twelve months of 1941
1. Net railway operating income	$170,879,895	$79,332,410	$1,480,969,669	$998,286,704
2. Other income	40,093,338	39,158,252	182,565,843	176,948,215
3. Total income	210,973,233	118,490,662	1,663,535,512	1,175,234,919
4. Miscellaneous deductions from income	11,918,015	6,633,978	45,838,991	31,952,202
5. Income available for fixed charges	199,055,218	111,856,684	1,617,696,521	1,143,282,717
6. Fixed charges:				
6-01. Rent for leased roads and equipment	17,332,348	11,133,041	181,122,978	152,423,197
6-02. Interest deductions[1]	39,808,743	41,663,026	446,214,403	466,768,165
6-03. Other deductions	135,564	142,067	1,436,769	1,450,097
6-04. Total fixed charges	57,276,655	52,938,134	628,774,150	620,641,459
7. Income after fixed charges	141,778,563	58,918,550	988,922,371	522,641,258
8. Contingent charges	4,677,832	3,516,950	30,061,716	21,248,182
9. Net income	137,100,731	55,401,600	958,860,655	501,393,076
10. Depreciation (Way and structures and Equipment)	19,061,015	23,308,300	247,403,405	221,015,791
11. Amortization of defense projects	15,227,065	3,702,491	91,958,827	8,344,714
12. Federal income taxes	45,940,820	4,440,340	758,867,301	172,597,269
13. Dividend appropriations:				
13-01. On common stock	25,123,786	23,414,331	161,377,945	158,400,722
13-02. On preferred stock	5,159,968	3,298,765	34,427,287	27,445,004
Ratio of income to fixed charges (Item 5 ÷ 6-04)	3.48	2.11	2.57	1.84

Selected Asset and Liability Items	All Class I Railways — Balance at end of December 1942	Balance at end of December 1941
20. Investments in stocks, bonds, etc., other than those of affiliated companies (Total, Account 707)	$534,222,452	$498,591,797
21. Cash	947,333,612	769,390,048
22. Temporary cash investments	709,501,630	135,210,121
23. Special deposits	152,856,710	205,472,767
24. Loans and bills receivable	314,733	1,198,759
25. Traffic and car-service balances—Dr.	37,025,330	32,394,324
26. Net balance receivable from agents and conductors	156,966,700	82,749,925
27. Miscellaneous accounts receivable	445,450,368	204,342,297
28. Materials and supplies	503,900,792	460,105,558
29. Interest and dividends receivable	17,561,344	16,770,455
30. Rents receivable	1,508,664	1,116,072
31. Other current assets	13,058,790	5,775,894
32. Total current assets (items 21 to 31)	2,985,478,673	1,914,526,220
40. Funded debt maturing within 6 months[2]	$140,844,986	$92,473,371
41. Loans and bills payable[3]	$31,367,557	$57,293,193
42. Traffic and car-service balances—Cr.	121,156,796	56,914,798
43. Audited accounts and wages payable	327,804,409	326,198,460
44. Miscellaneous accounts payable	76,405,985	56,110,506
45. Interest matured unpaid	72,482,101	95,357,477
46. Dividends matured unpaid	15,424,046	13,395,794
47. Unmatured interest accrued	65,926,203	67,086,540
48. Unmatured dividends declared	21,817,697	7,785,770
49. Unmatured rents accrued	17,611,597	16,597,980
50. Accrued tax liability	978,813,729	347,099,141
51. Other current liabilities	65,744,264	54,155,280
52. Total current liabilities (items 41 to 51)	1,794,554,384	1,097,994,939
53. Analysis of accrued tax liability:		
53-01. U. S. Government taxes	859,012,862	238,868,124
54-02. Other than U. S. Government taxes	119,800,867	108,231,017

[1] Represents accruals, including the amount in default.

[2] Includes payments of principal of long-term debt (other than long-term debt in default) which will become due within six months after close of month of report.

[3] Includes obligations which mature not more than 2 years after date of issue.

1942 Net Income Totaled $958,860,655

WASHINGTON, D. C.

THE Interstate Commerce Commission on March 18 made public its compilation of selected income and balance sheet items for December and the 12 months of 1942, showing last year's net income of 136 Class I railroads to have been $958,860,655, as already indicated in the Monthly Comment on Transportation Statistics of the commission's Bureau of Transport Economics and Statistics, reviewed in *Railway Age* of March 13, page 525. The corresponding figure for 1941 was $501,393,076, while for 1940 it was $185,064,902.

Net incomes were reported in 1942 by 117 Class I roads, while 12 reported net deficits. In 1941 net incomes were reported by 100 roads and deficits by 27. The report shows that roads not in receivership or trusteeship had a December net income of $118,494,206, as compared with $52,558,855 in the previous year; while their net income for the whole year 1942 was $785,367,066 as compared to $482,466,740 in 1941.

The commission's summary appears on the opposite page and the principal items for the individual roads are given in the following tables.

Selected Income Items by Regions and Districts, Class I Steam Railways, Calendar Years 1942 and 1941

Region and Railway	Net Railway Operating Income		Total Income		Total Deductions		Net Income	
	1942	1941	1942	1941	1942	1941	1942	1941
United States—Total	$1,480,969,669	$998,286,704	$1,663,535,512	$1,175,234,919	$704,674,857	$673,841,843	$958,860,655	$501,393,076
Eastern District—Total	536,732,548	396,632,801	627,952,907	487,345,621	295,627,105	290,937,523	332,325,802	196,408,098
New England Region	53,809,234	35,667,836	63,201,347	42,579,370	28,743,749	27,923,420	34,457,598	14,655,950
Great Lakes Region	203,809,378	163,235,550	230,675,307	191,546,826	119,662,740	112,954,409	111,012,567	78,592,417
Central Eastern Region	279,113,936	197,729,415	334,076,253	253,219,425	147,220,616	150,059,694	186,855,637	103,159,731
Southern District—Total	289,065,937	230,715,777	317,868,514	258,236,873	100,386,350	100,966,915	217,482,164	157,269,958
Pocahontas Region	74,852,009	92,042,384	80,130,083	96,861,954	15,371,167	15,064,075	64,758,916	81,797,879
Southern Region	214,213,928	138,673,393	237,738,431	161,374,919	85,015,183	85,902,840	152,723,248	75,472,079
Western District—Total	655,171,184	370,938,126	717,714,091	429,652,425	308,661,402	281,937,405	409,052,689	147,715,020
Northwestern Region	162,895,624	123,783,409	175,164,464	134,361,419	94,803,538	93,436,479	80,360,926	40,924,940
Central Western Region	335,406,710	167,154,065	380,330,523	210,127,304	150,888,765	124,147,012	229,441,758	85,980,292
Southwestern Region	156,868,850	80,000,652	162,219,104	85,163,702	62,969,099	64,353,914	99,250,005	20,809,788
Akron, Canton & Youngstown[1]	644,810	657,168	747,295	783,581	593,103	639,873	154,192	143,708
Atchison, Topeka & Santa Fe[2]	83,547,609	40,546,790	85,923,770	43,738,906	12,259,418	13,502,325	73,664,352	30,236,581
Atlantic Coast Line System:								
Atlanta & West Point	612,244	202,137	632,679	226,451	5,772	6,284	626,907	220,167
Atlanta, Birmingham & Coast	305,611	213,791	339,321	249,332	21,343	28,180	317,978	221,152
Atlantic Coast Line	21,195,567	11,080,953	29,565,522	18,461,341	6,946,167	7,328,869	22,619,355	11,132,472
Charleston & Western Carolina	873,595	814,606	895,040	835,742	304,952	304,797	590,088	530,945
Clinchfield	5,832,619	5,390,038	5,847,399	5,403,182	5,847,399	5,403,182	.....	.....
Georgia R.R.—Lessee Organization	3,678,644	1,437,454	3,717,957	1,475,625	653,670	667,000	3,064,287	808,625
Louisville & Nashville	23,732,085	25,548,223	28,622,072	28,639,859	9,214,490	9,164,609	19,407,582	19,475,250
Nashville, Chattanooga & St. Louis	5,702,913	3,309,419	5,901,212	3,498,769	1,581,597	1,610,252	4,319,615	1,888,517
Western Ry. of Alabama	805,357	299,760	840,587	334,408	74,772	75,170	765,815	259,238
Baltimore & Ohio System:								
Alton[1]	3,654,310	1,992,757	3,759,611	2,097,043	1,579,281	1,905,005	2,180,330	192,038
Baltimore & Ohio	69,558,718	46,297,125	78,229,401	54,603,873	32,905,804	33,511,990	45,323,597	21,091,883
Staten Island Rapid Transit	417,611	*190,269	575,598	571,452	575,598	571,452	.....	.....
Bangor & Aroostook	1,516,473	1,357,316	1,568,543	1,408,257	725,434	754,532	843,109	653,725
Bessemer & Lake Erie	3,635,912	7,137,888	3,848,915	7,381,869	1,677,369	1,682,869	2,171,546	5,699,000
Boston & Maine	15,821,788	10,492,596	17,514,700	11,814,601	7,017,129	6,762,408	10,497,571	5,052,193
Burlington-Rock Island	198,121	*61,536	207,329	*54,870	784,388	785,189	*577,059	*840,059
Burlington Route:								
Chicago, Burlington & Quincy	37,173,683	19,135,005	38,550,015	20,358,127	9,903,095	9,938,985	28,646,920	10,419,142
Colorado & Southern	2,729,605	1,043,185	3,652,139	2,048,031	2,059,290	2,102,248	1,592,849	*54,217
Fort Worth & Denver City	3,637,525	1,228,082	3,651,097	1,248,190	1,173,420	1,088,272	2,477,677	159,918
Cambria & Indiana	703,485	857,299	719,617	871,905	165,955	69,541	553,662	802,364
Canadian National System:								
Canadian National Lines in New England	*1,251,151	*502,876	853,281	594,158	583,070	573,613	270,211	20,545
Central Vermont	1,477,894	1,408,388	1,536,254	1,465,885	1,458,009	1,605,944	78,245	*140,059
Duluth, Winnipeg & Pacific	170,943	32,423	557,466	519,321	443,788	449,706	113,678	69,615
Grand Trunk Western	5,948,489	6,154,930	6,703,974	7,023,977	5,133,569	5,104,188	1,570,405	1,919,789
Canadian Pacific System:								
Canadian Pacific Lines in Vermont	*671,124	*486,216	334,336	264,000	264,000	264,000	70,336	.....
Duluth, South Shore & Atlantic[1]	946,969	627,466	966,258	638,494	905,425	922,204	60,833	*283,710
International Ry. Co. of Maine	1,577,310	697,790	1,582,140	707,586	1,553,781	707,586	28,359	.....
Minneapolis, St. Paul & Sault Ste. Marie[1]	7,871,134	5,287,094	8,025,651	5,434,459	10,659,246	9,597,095	*2,633,595	*4,162,636
Chesapeake & Ohio System:								
Chesapeake & Ohio	39,643,585	51,559,186	41,459,694	53,024,217	8,306,257	8,084,473	33,153,437	44,939,744
New York, Chicago & St. Louis	13,222,981	17,568,115	14,711,934	19,752,768	6,021,363	7,066,077	8,690,571	12,686,691
Chicago & Eastern Illinois	3,787,932	1,933,542	4,072,402	2,213,844	1,406,677	1,463,272	2,665,725	750,572
Chicago & Illinois Midland	997,706	1,080,904	1,007,648	1,089,776	349,923	350,056	657,725	739,720
Chicago & North Western System:								
Chicago & North Western[1]	24,939,999	16,793,076	26,593,996	18,352,604	16,629,757	16,892,487	9,964,239	1,460,117
Chicago, St. Paul, Minneapolis & Omaha	3,181,322	1,703,732	3,249,093	1,782,860	2,544,636	2,488,539	704,457	*705,679
Chicago Great Western	3,702,544	2,918,678	3,802,536	3,030,313	1,185,045	1,290,732	2,617,491	1,739,581
Chicago, Indianapolis & Louisville[1]	2,398,656	2,224,062	2,525,650	2,343,316	1,524,128	1,530,184	1,001,522	813,132
Chicago, Milwaukee, St. Paul & Pacific[1]	34,504,654	28,181,975	35,628,847	29,341,397	23,454,016	23,810,063	12,174,831	5,531,334
Chicago, Rock Island & Pacific[1]	36,557,111	17,616,382	37,105,899	18,352,967	14,871,674	13,708,384	22,234,225	4,644,583
Colorado & Wyoming	276,738	416,979	278,550	418,329	83,375	83,250	195,175	335,079
Columbus & Greenville	55,590	117,586	95,573	138,971	10,753	11,007	84,820	127,964
Delaware & Hudson	10,423,919	8,497,736	11,009,077	8,867,951	6,233,369	5,843,531	4,775,708	3,024,420
Delaware, Lackawanna & Western	11,648,816	10,125,797	12,739,548	11,454,530	7,590,063	7,782,832	5,149,485	3,671,698
Denver & Rio Grande Western[1]	17,229,206	4,517,079	17,444,438	3,902,558	6,137,472	6,204,472	11,306,966	*2,301,914
Denver & Salt Lake	1,199,347	915,335	1,212,560	932,387	1,128,650	917,955	83,910	14,432
Detroit & Mackinac	341,918	105,935	347,800	111,020	113,330	114,894	234,470	*3,874
Detroit & Toledo Shore Line	731,656	842,353	782,619	905,633	166,867	177,159	615,752	728,474
Detroit, Toledo & Ironton	2,158,996	3,019,404	2,193,448	3,091,460	567,730	806,700	1,625,718	2,284,760
Duluth, Missabe & Iron Range	9,174,633	14,311,352	9,229,058	14,639,109	1,025,736	1,077,457	8,203,322	13,561,652
Elgin, Joliet & Eastern	3,681,119	5,541,975	3,754,504	5,700,316	795,013	822,969	2,959,491	4,877,347

* Deficit.
[1] Report of trustee or trustees.
[2] Includes Atchison, Topeka & Santa Fe Ry., Gulf, Colorado & Santa Fe Ry., and Panhandle & Santa Fe Ry.

Selected Income Items by Regions and Districts, Class I Steam Railways, 1942 and 1941—Continued

Region and Railway	Net Railway Operating Income		Total Income		Total Deductions		Net Income	
	1942	1941	1942	1941	1942	1941	1942	1941
Erie System:								
Erie	24,372,831	20,931,583	25,372,902	22,086,965	11,033,378	14,233,233	14,339,524	7,853,732
New York, Susquehanna & Western[1]	916,410	657,852	990,687	740,040	721,753	655,824	268,934	84,216
Florida East Coast[1]	7,873,959	1,580,527	8,000,249	1,652,098	2,917,237	2,942,712	5,083,012	*1,290,614
Frisco Lines:								
St. Louis-San Francisco[1]	25,874,296	11,997,351	26,054,055	12,240,122	12,687,431	12,763,352	13,366,624	*523,230
St. Louis, San Francisco & Texas	923,696	128,046	939,902	144,420	130,885	1,273,214	809,017	*1,128,794
Georgia & Florida[2]	128,104	190,836	141,348	205,058	739,158	726,177	*597,810	*521,119
Great Northern	39,445,076	28,001,535	44,037,954	31,627,785	14,983,933	14,842,626	29,054,021	16,785,159
Green Bay & Western	266,615	261,227	304,248	301,168	108,203	74,409	196,045	226,759
Gulf, Mobile & Ohio	5,648,668	3,661,460	5,991,662	3,965,869	1,961,445	1,951,961	4,030,217	2,013,908
Illinois Central System:								
Central of Georgia[1]	7,711,979	4,385,060	8,456,847	5,028,662	4,473,068	3,634,675	3,983,779	1,393,987
Gulf & Ship Island	262,705	*38,541	271,876	*11,906	271,876	53,903	.....	*65,809
Illinois Central	30,385,730	21,101,522	33,820,893	26,865,117	16,594,214	16,439,108	17,226,679	10,426,009
Yazoo & Mississippi Valley	10,572,126	4,801,729	10,635,326	4,903,399	3,088,614	4,903,399	7,546,712	.....
Illinois Terminal	2,068,328	1,554,573	2,097,009	1,579,301	591,033	601,088	1,505,976	978,213
Kansas City Southern	4,729,810	4,083,546	5,448,194	4,769,592	2,906,409	2,923,470	2,541,785	1,846,122
Kansas, Oklahoma & Gulf	816,734	775,387	875,941	841,376	268,004	271,570	607,937	569,806
Lake Superior & Ishpeming	865,725	1,045,285	872,553	1,044,496	929	377	871,624	1,044,119
Lehigh & Hudson River	453,986	429,942	478,927	455,513	589	670	478,338	454,843
Lehigh & New England	1,475,561	1,388,190	1,502,706	1,414,594	358,195	371,491	1,144,511	1,043,103
Lehigh Valley	13,117,576	10,093,506	14,152,120	11,028,983	7,778,513	7,772,513	6,373,607	3,256,470
Louisiana & Arkansas	2,475,312	2,433,816	2,553,455	2,512,710	1,065,066	1,059,609	1,488,389	1,453,101
Maine Central	3,039,819	2,702,482	3,674,590	3,154,028	1,900,148	1,904,946	1,774,442	1,249,082
Midland Valley	380,886	425,152	527,029	552,869	466,691	438,761	60,338	114,108
Minneapolis & St. Louis[2]	3,129,233	1,468,929	3,185,314	1,530,693	4,105,861	3,126,267	*920,547	*1,595,574
Mississippi Central	397,262	187,420	399,778	189,984	300,008	313,062	99,770	*123,078
Missouri & Arkansas	51,510	31,382	53,359	32,815	11,351	8,790	42,008	24,025
Missouri-Kansas-Texas[6]	10,471,483	3,969,685	10,932,010	4,495,961	5,051,464	5,141,486	5,880,546	*645,525
Missouri Pacific System:								
Beaumont, Sour Lake & Western[1]	2,381,638	1,085,715	2,384,543	1,088,843	175,524	176,343	2,209,019	912,500
International-Great Northern[2]	5,786,908	1,334,669	5,984,249	1,477,708	2,821,732	2,820,756	3,162,517	*1,343,048
Missouri-Illinois[2]	550,984	585,212	644,633	724,961	97,888	127,516	546,745	597,445
Missouri Pacific[1]	49,309,302	23,033,729	51,650,195	25,167,617	21,000,527	20,942,351	30,649,668	4,225,266
New Orleans, Texas & Mexico[1]	2,763,038	1,329,846	2,839,371	1,389,988	2,897,265	2,799,062	*57,894	*1,409,074
St. Louis, Brownsville & Mexico[1]	3,528,799	2,014,975	3,663,854	2,094,024	798,886	800,394	2,864,968	1,293,630
San Antonio, Uvalde & Gulf[1]	*269,340	*323,250	*262,973	*313,730	245,949	244,273	*508,922	*558,003
Texas & Pacific	12,401,106	6,938,074	12,893,935	7,462,774	3,890,394	3,916,773	9,003,541	3,546,001
Monongahela	1,504,772	1,989,771	1,529,760	2,011,938	547,273	648,924	982,487	1,363,014
Montour	819,091	826,403	822,889	830,955	46,768	48,000	776,121	782,955
Nevada Northern	169,613	191,241	176,966	198,968	884	710	176,082	198,258
New Haven System:								
New York, New Haven & Hartford[1]	30,012,844	16,924,935	33,719,531	19,972,590	13,807,417	13,960,212	19,912,114	6,012,378
New York, Ontario & Western[1]	200,031	*216,027	223,763	*197,757	1,348,275	1,353,905	*1,124,512	*1,551,662
New York Central Lines:								
New York Central[3]	90,399,495	57,418,760	108,678,085	76,502,548	59,595,902	50,256,986	49,082,183	26,245,562
Pittsburgh & Lake Erie	7,378,279	7,491,014	7,708,719	7,962,026	2,342,271	1,814,323	5,366,448	6,147,703
New York Connecting	1,690,031	2,806,114	1,750,766	2,862,071	963,716	983,194	787,050	1,878,877
Norfolk & Western	23,829,764	29,076,278	26,983,830	32,077,993	4,484,317	4,315,929	22,499,513	27,762,064
Norfolk Southern	1,196,204	849,317	1,388,802	1,037,496	686,701	1,249,246	702,101	*211,750
Northern Pacific	27,463,103	19,922,776	31,271,755	22,669,049	14,967,837	14,912,033	16,303,918	7,757,016
Oklahoma City-Ada-Atoka	302,414	23,163	309,528	25,868	45,188	183	264,340	25,685
Pennsylvania System:								
Ann Arbor[2]	599,894	662,367	858,551	682,314	305,529	437,363	553,022	244,951
Long Island	2,002,737	767,881	2,374,704	1,104,442	2,389,751	2,395,128	*15,047	*1,290,686
Pennsylvania	145,278,344	97,102,488	186,375,225	138,765,583	84,906,432	86,381,625	101,468,793	52,383,958
Wabash	11,051,645	9,114,649	11,798,077	9,788,652	5,298,005	4,256,539	6,500,072	5,532,113
Pennsylvania-Reading Seashore Lines	*204,517	*990,589	*2,512	*799,194	1,081,996	1,088,268	*1,084,508	*1,887,462
Pere Marquette	6,275,279	6,115,395	6,947,672	6,636,486	3,378,606	3,399,579	3,569,066	3,236,907
Pittsburg & Shawmut	329,087	242,650	331,445	245,213	453,099	451,911	*121,654	*206,698
Pittsburgh & West Virginia	1,787,584	1,654,399	2,150,972	2,082,152	872,007	907,360	1,278,965	1,174,792
Pittsburg, Shawmut & Northern[2]	106,593	282,931	113,463	288,420	158,061	187,566	*44,598	100,854
Reading System:								
Central of New Jersey[1]	9,321,852	5,088,050	10,388,520	5,924,181	5,341,856	5,384,875	5,046,664	539,306
Reading	21,721,740	16,152,539	23,783,193	18,093,461	8,492,193	8,763,257	15,291,000	9,330,204
Richmond, Fredericksburg & Potomac	4,008,903	2,618,024	4,268,208	2,867,813	253,155	331,452	4,015,053	2,536,361
Rutland[2]	595,350	267,307	667,206	336,194	471,045	406,985	196,161	*70,791
Seaboard Air Line[2] [4]	30,445,971	10,106,964	30,914,880	10,611,359	9,926,863	9,430,289	20,988,017	1,181,070
Southern System:								
Alabama Great Southern	2,409,124	2,331,666	3,572,531	3,512,255	530,263	537,130	3,042,268	2,975,125
Cincinnati, New Orleans & Texas Pacific	5,222,964	5,958,047	5,293,691	6,084,245	1,861,213	1,861,488	3,432,478	4,222,757
Georgia Southern & Florida	995,800	524,289	1,004,230	531,861	359,959	362,960	644,271	168,901
New Orleans & Northeastern	1,413,966	1,426,799	1,444,371	1,454,055	333,923	345,956	1,110,448	1,108,099
Southern	46,265,818	32,789,981	49,446,222	35,669,611	16,057,354	16,299,717	33,388,868	19,369,894
Southern Pacific System:								
Northwestern Pacific	1,038,295	*200,340	1,078,296	*166,438	1,393,728	1,406,723	*315,432	*1,573,161
St. Louis Southwestern[1] [5]	8,615,365	7,495,070	8,720,644	7,607,904	3,047,067	3,135,856	5,673,577	4,472,048
Southern Pacific	76,829,467	44,455,854	94,857,987	63,198,826	76,633,474	49,448,024	18,224,513	13,750,802
Texas & New Orleans	25,672,343	12,981,447	25,973,936	13,308,476	4,481,652	4,677,372	21,492,284	8,631,104
Spokane International	381,784	197,702	386,810	210,253	136,471	289,413	250,339	*79,160
Spokane, Portland & Seattle	6,851,890	3,030,159	7,052,925	3,239,418	3,652,655	3,663,071	3,400,270	*423,653
Tennessee Central	489,323	402,350	498,363	412,076	252,372	251,707	245,991	160,369
Texas Mexican	455,429	304,385	470,548	319,235	193,226	175,110	277,322	144,125
Toledo, Peoria & Western	1,033,024	457,605	1,051,497	478,720	70,303	74,119	981,194	404,601
Union Pacific	61,024,720	30,535,373	81,903,458	48,660,016	19,819,473	19,802,596	62,083,985	28,857,420
Utah	198,405	78,752	200,681	81,416	91,177	79,834	109,504	1,582
Virginian	7,369,757	8,788,896	7,418,351	8,891,931	2,327,438	2,332,221	5,090,913	6,559,710
Western Maryland	7,311,848	5,795,020	7,512,664	5,921,552	3,350,434	3,367,198	4,162,230	2,554,354
Western Pacific[1]	9,108,052	4,223,986	9,483,559	4,579,258	3,684,051	3,884,110	5,799,508	695,148
Wheeling & Lake Erie	3,781,160	3,972,442	3,947,956	4,125,651	573,688	571,374	3,374,268	3,554,277

* Deficit.
[1] Report of trustee or trustees.
[2] Report of receiver or receivers.
[3] Includes Boston & Albany, lessor to New York Central.
[4] Omits certain interest charges.
[5] Includes St. Louis Southwestern and St. Louis Southwestern of Texas.
[6] Includes Missouri-Kansas-Texas and Missouri-Kansas-Texas of Texas.

Curve Rails Face New Affliction:

Gage-Corner Shelling

Failure affecting the running surface in heavy-traffic territory attributed to fatigue of metal due to wheel action—Problem of prevention has not been solved

An Example of Gage-Corner Shelling in a Rail of the Norfolk & Western that Has Been Relaid in a Side Track

FOR several years track men have been watching with growing concern the increasing incidence of a relatively new form of rail failure known as "gage-corner shelling." Deriving its name from the fact that the phenomenon is manifested by a condition of the wearing surface at the gage corner that may be described as a shelling or sloughing off of the metal, this type of failure is encountered almost exclusively on the high rails of curves in heavy-traffic territory. It is generally agreed by those who have had occasion to study this condition that it is a fatigue failure. However, the diagnosis has proved more simple than the cure; as yet the problem of developing measures for preventing the phenomenon largely remains unsolved, although various expedients have been proposed and tests of some of them are now being conducted.

Gage-corner shelling is most commonly encountered in 131-lb. R. E. rail, although its presence has been reported in at least some degree in almost every section of rail from 100 lb. upwards. It seems first to have been noted about 1938 in rail that had been in service only three or four years, but since then, because of the serious implications of the defect and its appearance on an increasing scale, it has risen rapidly to prominence as a problem of major proportions. Investigations of the phenomenon are now being conducted with a view to the development of methods of preventing it, by several individual roads and by a subcommittee of the A. R. E. A. Committee on Rail.

What Shelling Is

The first manifestation of shelling is the appearance on the running surface of the rail near the gage side of dark spots which are somewhat similar to spots of black paint. These spots are indicative of the presence of horizontal separation planes within the rail head, which may occur on a number of different levels in the same rail. Eventually, these horizontal splits penetrate through the head in a manner that may cause pieces of metal to become loosened and to drop out of position. Also, the cracks may break out at the running surface as well as on the gage side and when this happens the surafce metal chips or shells off. The shelled spots are irregular in size, varying from 1 in. to 6 in. or more in length, from ¼ in. to 1½ in. in width, and ⅛ in. to ½ in. in depth. Thus, it can be seen that an exceedingly rough condition of the rail surface is produced, especially if the spots, as frequently happens, are numerous and closely spaced. Furthermore, detailed fractures have occurred in such rails, which have originated in the shelly spots.

Flaking-off of Surface Metal

There is another condition that frequently occurs in connection with gage-corner shelling, which may or may not be related to it. This condition is manifested by a flaking off of the surface metal of the rail in small particles and to a depth of only a very small fraction of an inch. One explanation is that flaking is an early stage of shelling, although there is no general agreement on this point, and it is possible that there is no direct relationship between the two phenomena. Incidentally, neither shelling nor flaking should be confused with head checks or cracks, which represent an entirely different type of defect.

Gage-corner shelling occurs almost exclusively in the high rails of curves in heavy-traffic territory, although in a few instances it has been discovered in rail on tangent track near the ends of curves. The extent and severity of the condition vary widely, even under the same or similar service conditions. Some rails in curves where the phenomenon occurs may have one or two shelly spots; others may have a continuous succession of the spots throughout their lengths; while still others may be entirely free of the condition. However, there is no indication that rails produced at any one mill are particularly susceptible, nor does the position of the rail in the ingot seem to have any significance. To date, at-

tempts to establish a definite relationship between rail shelling and mill chemistry have been unsuccessful.

A Fatigue Failure

The view is widely held by those who have made a study of the condition that the horizontal separations causing shelling are fatigue cracks. According to one explanation, the wheels of the higher speed trains impose an outward rolling action on the running surface of the high rail, while those of slower trains have a similar effect in the reverse direction. Ultimately, these reversals of stress and flow, it is said, cause the ductility of the metal to become exhausted, thereby opening the way to the formation of fatigue cracks and shelling. In this action it is said that segregation streaks or non-metallic inclusions in the rails may act as nuclei for the formation of the fatigue cracks.

Assuming, for a moment, that this is the correct explanation, the question naturally arises: "Why, then, is it that gage-corner shelling was unheard of prior to a few years ago?" One answer that has been advanced to this question is that the introduction of the practice of lubricating curves on a wide scale has effected a change in the picture. Prior to the era of curve lubrication, it is held, the high rails on curves wore out rapidly where traffic conditions were severe, so that it was necessary to remove them before fatigue, and, hence, shelling, could have a chance to set in. Obviously, when curves are lubricated, the rate of wear of the high rails is slowed down materially, so that they can be kept in service considerably longer than formerly, even under conditions of heavy traffic and high speeds. Thus, it is held, with this greater length of service under severe conditions, the factor of fatigue has an opportunity to manifest itself in the form of shelling.

It has been pointed out that this explanation has certain flaws. One is that shelling has been noted in rail on curves that are not lubricated. Another is that the practice of lubricating curves on certain roads where shelling has been heavy antedated by some years the incidence of that phenomenon. Considering these factors, it is pointed out that, in all probability, no one factor can be singled out as the cause of gage-corner shelling, but rather that it is due to a combination of circumstances.

Some Factors to Consider

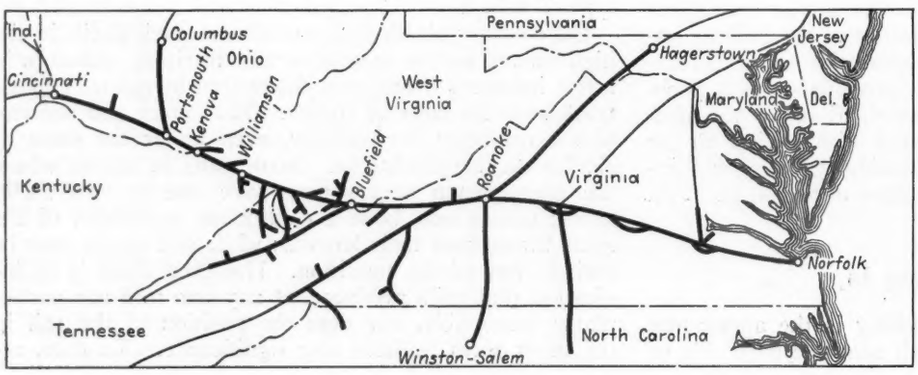
Obviously, the condition is a product of the effect of wheel action on the rail, resulting in failure of the metal by overstressing, either by direct stress exceeding the elastic limit, or, as explained previously, by loss of ductility caused by reversals of stress. Considering the problem from this angle, there are a number of factors that conceivably might be contributing agencies, either

A Shelled Spot in a Rail on the C. & O.

The Shelled Spots Shown in this Rail on the C. & O. are Small, Shallow and Numerous

because of their effect in determining the direct stress imposed by the wheels of equipment, or because they influence the ability of the rail to withstand stresses. Among these might be included the following: Canting of the tie plates; superelevation; the bearing pressure of the wheels of equipment; the radius of the gage corner of the rail; the radius of the fillet between the flanges and treads of wheels; the composition of the rail steel; mill practices; the degree of curvature; and the effect of rail lubrication. All these factors are currently receiving consideration and some of them are being made the subject of tests to determine their effect, if any, on the development of shelling.

The matter of the composition of the rail steel has



Sketch Map of the Norfolk & Western. About 80 Per Cent of the Shelling Encountered on This Road Occurs Between Portsmouth, Ohio and Bluefield, W. Va.

received particular attention. That this factor may have a bearing on the problem is given a certain amount of weight by the fact that in a change in the specifications for rail steel that was effected in 1933, the upper limits of the carbon content were reduced somewhat and an adjustment was made in the manganese content. In some quarters it is believed that high-carbon rails have a greater resistance to shelling, while in others it is believed that the solution to the problem is a rail steel having a higher content of silicon and manganese. Another theory is that by introducing certain metallographic changes in combination with controlled cooling, a rail steel can be developed for use in curves that will have a greater resistance to flow.

Effect of Superelevation

Turning to the matter of superelevation, one road that has experienced only a slight amount of shelling on its lines, some of which carry a heavy coal traffic, has attributed its comparative immunity in part to the fact that it elevates its curves somewhat more than do other roads on which the problem is more serious, thereby imposing a greater part of the load on the low rail and relieving the high rail. Another factor given consideration on this road is that it does not use Mallet locomotives, although on other roads which use heavy Mallet locomotives shelling is extensively experienced in the heavy tonnage tracks but not in the opposite direction light-tonnage tracks over which the same engines operate.

On a number of roads where shelling has been encountered, rails with this type of failure have been transposed or have been turned end for end. One such road has found that when rails showing shelling are transferred to the low side of the curve they can be kept in service indefinitely. On the other hand, when shelled rails are replaced with rails from the low side of the curve the latter also develop the shelled condition. Another road has found that when shelled rails are turned end for end they develop shelling on the other side of the head.

N. & W. Has Suffered Heavily

Gage-corner shelling has probably been encountered to a greater extent on the Norfolk & Western than on any other single railroad, and the remainder of this article will be devoted to a description of the experiences of this company. A measure of the seriousness of the problem on the N. & W. is given by the fact that a total of approximately 10,000 tons of rail has been furnished the various divisions of the railroad for insertion in track to replace rail that had become so badly shelled that it was necessary to remove it. Moreover, numerous detail fractures have been experienced at shelled spots.

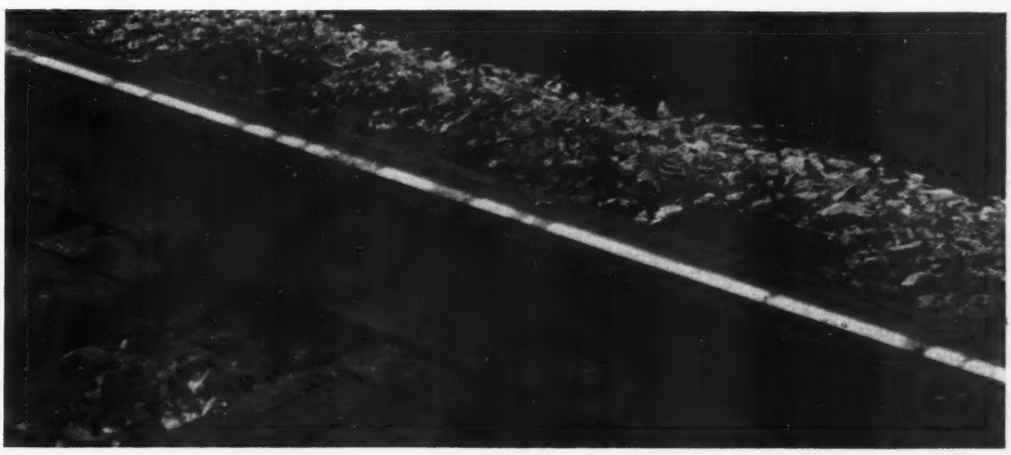
Before describing the experiences of this company with shelling, it may be pertinent to give a background of information of the conditions on this road that may have a bearing on the problem. Its average freight traffic density, along with that of the Chesapeake & Ohio, is heavier than that of any American railroad more than 750 miles in length. The double-track main line extends between Columbus, Ohio, on the west, and Norfolk, Va., at tidewater, on the east, and passes through the Virginia, West Virginia and Kentucky coal fields, from which there is a heavy coal movement in both directions. The terirtory of heaviest movement, in which the preponderance of shelling has occurred, traverses rugged mountain country requiring relatively sharp curves and heavy grades. The majority of the coal traffic moves either in 57.5-ton cars having a gross weight when loaded of about 80 tons, or 70-ton cars which have a gross weight of approximately 100 tons.

Motive Power

Among the heaviest units of motive power in use are a number of 2-8-8-2 Mallet locomotives which have a total weight on the drivers of 522,850 lb., or 32,678 lb. per driver. These engines were first introduced about 1930 and are used principally for hauling coal. The power in use also includes 2-6-6-4 simple articulated locomotives, which have a total weight on the drivers of 430,100 lb., or 35,841 lb. per driver. Introduced about 1936, these engines are used principally for hauling time-freight trains.

For some time prior to 1930, the road used 130-lb. PS rail as the standard section for its main-line track. On the average this rail had a life of about five years in heavy-traffic territory. During 1931-32 all new rail that was purchased consisted of the 130-lb. R.E. headfree section. In 1933, the road went to the 131-lb. R.E. section, and has installed this rail exclusively ever since. All rail purchased since 1938 has been controlled-cooled. Where possible, only blue-end (high-carbon) rail is laid on curves.

Other aspects of the main line track construction are in keeping with the heavy rail section used, including 6-hole 36-in. angle bars with rail-joint springs; 8-in. by 13½-in. double-shoulder tie plates on tangent track, and 8-in. by 18-in. double-shoulder plates on curves of 6 deg. or more in heavy-traffic territory, the latter being spiked with 2 rail spikes and 2 hold-down spikes at each tie plate; 12 rail anchors per rail or 24 per panel; 7-in. by 9-in. by 8½-ft. treated hardwood crossties; and crushed stone ballast. Tie plates are canted 1 in 20. Generally



The Dark Spots on the Running Surface of This Rail Are an Early Indication of Shelling

As Shown in This View of a Rail on the N. & W., Shelled Spots Are Irregular as to Length, Width and Depth

speaking, the sharper curves (about 4 deg. and up) are superelevated to provide equilibrium at freight-train speeds; on lighter curves the elevation of the outer rail is somewhat more than is necessary for this purpose. For many years it has been the practice of the road to lubricate the high rails of curves in heavy-traffic territory.

First Occurred in 131-Lb. Rail

Prior to the introduction of 131-lb. R.E. rail in 1933, very little gage-corner shelling was encountered. Although the 130-lb. PS section developed the dark spots and flaking that are today recognized as forerunners of shelling, they did not progress beyond this stage. Shelling was first encountered in 1938, being found largely in 131-lb. rail that had been laid in 1934-35, although it was also found in a certain amount of rail of this section that had been placed in track in 1933. Since then the occurrence of this type of failure on an increasing scale has brought it to the fore on this road as a problem of major proportions, and various studies and tests are now being conducted with the end in view of developing measures for preventing it.

The shelling occurs almost exclusively on the heavy-duty sections of the company's main line. These are that portion of the eastbound main track between Williamson, W. Va., and Norfolk, Va., and that part of the westbound main between Bluefield, W. Va., and Columbus. However, about 80 per cent of the shelling is confined to a relatively small portion of the main line, namely, between Portsmouth, Ohio, and Bluefield, about 212 miles, which section not only includes the heaviest traffic portion of the railroad, but which also contains a large amount of curvature, the maximum being about 12 deg.

The traffic carried is exceedingly heavy. In 1941, that section of the westbound main track between Williamson and Kenova, W. Va., 73 miles, carried 55,000,000 gross tons of traffic; over a period of years the traffic carried by this track has averaged about 45,000,000 gross tons annually. Eastbound traffic is somewhat lighter; as a measure of this movement, that section of the eastbound main between Bluefield and Roanoke carried 28,000,000 gross tons in 1941, while over a period of years it has averaged about 22,000,000 gross tons annually. Practically all rail in this heavy-duty track is now of the 131-lb. R.E. section.

By far the greatest amount of shelling occurs on this road in curves between 4 deg. and 6 deg., inclusive. Curiously, it has rarely been encountered in curves of over 7 deg. On the other hand, on occasion it has been found in curves as light as 1 deg. and 1 deg. 30 min. to a sufficient extent to require that the rails be removed. Another curious fact is that one curve may be badly afflicted, while an adjacent curve of the same radius may escape entirely. Frequently the condition is found in rail that has been in track only about a year. It is not believed on the N. & W. that grades are a factor in causing shelling.

In studying the problem of gage-corner shelling on this road, consideration has been given to the fact that the discrepancy between the gage corner radius (3/8-in.) of the 131-lb. section and that between the flanges and treads of wheels (3/4-in.) might be a factor. To test this theory, the gage corners of a number of 131-lb. rails were so rolled as to produce a radius of 7/16 in., after which the rails were placed in track in curves where shelling had been experienced. These rails have been in service somewhat less than a year, and do not as yet show any evidence of shelling.

Consideration has also been given to the possibility that rail that has been subjected to a slow cold-rolling process might be resistant to shelling. To determine the soundness of this theory, a number of rails that had been in service in single-track territory for a sufficient length of time to have developed a cold-rolled running surface were removed from their original locations and re-installed in track in territory where shelling had occurred. Sufficient time has not yet elapsed to permit any conclusions to be drawn from this test.

From the foregoing it is apparent that, while the basic cause (loss of ductility due to fatigue) of shelling has been fairly well established, the problem of developing a practicable means of preventing it has proved most baffling, and stands as a challenge to the best efforts of those who are seeking its solution.

* * *

Elevation 4,400 Ft. on an Eastern Railroad

A helper locomotive on the Western Maryland after cutting off a train at the highest railroad crossing in the East—Elevation at this point is over 4,400 ft.

Railroads Need Materials for New and Repaired Freight Cars

Freight equipment improvements, car maintenance methods, operating requirements and material needs are discussed by specialists at Western Railway Club Meeting

THE regular monthly meeting of the Western Railway Club at Chicago on Monday evening, March 15, was distinctively a car night, with short, constructive papers covering many of the current problems now confronting railway car men. The principal address by J. D. Rezner, superintendent car department, Chicago, Burlington & Quincy, gave a clear picture of improvements in freight cars since World War I and indicated that if railroads are given the consideration and help required in securing materials for badly-needed new equipment and for repairs, there will be no question about successfully handling any peak freight traffic likely to be offered in 1943. L. R. Wink, superintendent car department, Chicago & North Western, called attention to the number of cars currently out of service on account of bad order and also showed how hot boxes, in spite of greatly reduced numbers, still constitute a great source of delay in freight transportation and expense to the carriers.

A short paper by F. G. Moody, superintendent car department, Northern Pacific, was read by his assistant, G. H. Wells, and emphasized some of the things which must be done in order to facilitate and speed up the work of repairing cars when in shops and on repair tracks, thus compensating to some degree for shortages of material and labor.

R. D. Bryan, mechanical assistant, of the Atchison, Topeka & Santa Fe, next pointed out that, with reduced material requirements for new war production plants, structural materials should be made available to the railroads to the extent that it can be definitely shown they are needed for new and repaired freight cars, without which both raw materials and finished products, essential to the conduct of the war as well as to our civilian economy, can never be transported in adequate quantities to points where they are needed.

While most of the meeting was devoted to freight cars, some extremely pertinent comments regarding means of increasing the availability of passenger cars were presented in a paper by J. A. Deppe, superintendent car department, Chicago, Milwaukee, St. Paul & Pacific, this paper being read, in Mr. Deppe's enforced absence, by his assistant, F. A. Shoulty. C. M. House, superintendent of motive power, Alton, and president of the Western Railway Club, introduced Mr. Rezner and special guests, the latter including C. J. Wolfe, associate director, Division of Railway Transportation, ODT, Washington, D. C.; J. E. Friend, deputy director, ODT, Chicago, and H. S. Keppleman, deputy director, ODT, Washington. In closing the meeting, Mr. House made an urgent appeal for still further co-operation between railway men and shippers in expediting freight-car movement and especially doing necessary deferred repair work on tank cars the first time they are empty, as delays to loaded tank cars under present pressing conditions in the movement of petroleum products are inexcusable.

Improvements In Freight-Car Construction

By J. D. Rezner*

A great deal has been said about the condition and use of freight cars in the United States during the present war period as compared with the period of World War I. We all know that the modern freight car has a far greater availability for service and a larger carrying capacity than it had during World War I. My purpose is to outline in a general way the improvements in the design and construction of Burlington freight cars since World War I that have enabled us to produce more efficient freight service.

At the end of 1917, the first year of our participation in World War I, the Chicago, Burlington & Quincy owned 69,390 revenue freight cars, as compared with an ownership of 42,671 at the end of 1941, when we actively engaged in World War II.

The following is a brief comparison of the general construction and average tons carrying capacities of these units:

	1917	1941
Steel construction	22,801	8,117
Steel underframe construction	6,174	27,618
Other construction	40,494	6,936
Total	69,469	42,671
Approx. av. carrying cap., tons	41.48	44.12

The majority of cars in service in 1917 were of 40-ton capacity, and box cars of that period were of about 2,700-cu.-ft. capacity. Box and auto cars, constructed during and since World War I, range from 2,700 to 4,950-cu.-ft. capacity, the average for present ownership of box and auto cars being 3,298 cu. ft., or almost 600 cu. ft. per car larger than the box cars in service during 1917.

Stated differently, many 50-ton cars were built during the intervening period, but there was a large carry-over of 40-ton cars. Plans to retire many 40-ton cars were set aside as the demand for equipment increased prior to our entry in World War II. As an alternative, many of the 40-ton cars were overhauled and improved, making them suitable for handling high-class commodities.

Over 58 per cent of the cars owned in 1917 were of other than steel or steel underframe construction which,

* Superintendent car department, Chicago, Burlington & Quincy, Chicago.

for the most part, were cars of all-wood underframes and superstructure with arch-bar trucks, while at the end of 1941, over 84 per cent of the ownership were of steel or steel underframe construction and the remaining 16 per cent were equipped with cover-plated steel center sills, all being equipped with cast-steel truck sides and practically all with improved couplers and draft gears.

Increased Use of Composite Cars

In comparing the figures shown as to cars of all-steel construction, the question may well be raised as to the decrease in this type of car in 1941 as compared with 1917. All-steel construction was first used extensively in gondola cars, our accepted design of this type of car later being changed to a composite of steel and wood, that is, steel underframe, posts, and braces, with wood sides, ends, and floors.

In recent years, with an increase in the demand by shippers for hopper cars for coal, ore, sand and gravel loading, covered hoppers for bulk cement, silica sand and other products, and mill-type low-side gondolas for steel manufacturers' products, many cars of these types have been built entirely of steel. Steel-sheathed construction has also been followed in building box and auto cars of recent design.

At the time of World War I, the majority of our cars were equipped with wood underframes; they were also equipped with arch-bar trucks, body-hung brake beams, small couplers, spring draft gears, wood ends and roofs, H-type air-brake valves, wood buffer blocks and other appurtenances that have been vastly improved during the last 20 years. During and since the last war, an extensive program of modernization of existing freight cars has been carried on; new equipment has been constructed to embody the latest engineering improvements and in line with the requirements and designs recommended by the Association of American Railroads.

Steel Center Sills Applied—Other Improvements

The first steps taken to improve existing equipment was the application of steel center sills (without cover plates) and steel draft attachments to wood-underframe cars. This program was started prior to our entry into World War I and continued until all wood center sills were replaced. Subsequently, cover plates were applied to these steel sills; as a result cars have been able to move at higher speeds without the many sill failures experienced during the last war.

Prior to, during, and following World War I, brake beams were changed from body- to truck-hung, thus largely eliminating the danger of derailment. Brake beams and bottom brake rods were further supported later on against dropping to the track in case of failures by application of safety supports. Over the same period, H-type air-brake valves were replaced by the K-type. Later on these were in turn replaced by the modern AB-type brake.

The replacement of wood box car ends with steel ends and the application of gussett reinforcing plates and other end-structure improvements has practically eliminated the bad-ordering and transfer of cars due to end failures.

Another notable improvement has been the increase in coupler-shank dimensions from 5 in. by 5 in. to 6¼ in. by 8 in. with corresponding increase in overall size of couplers. This increase in coupler size has kept pace with the increase in size and load of freight cars, making possible greater freight-train speed, and has also materially reduced coupler failures. Finally, the replacement of arch-bar trucks on all cars used in interchange by trucks with cast-steel sides has greatly reduced the number of truck failures.

These are but a few of the many improvements in freight cars made since World War I. The following is a log of other pertinent changes in design and construction of freight cars during the past 20 years, not previously mentioned:

The equipping of automobile cars with loading devices, increasing the capacity from three to four automobiles per car; also special loading devices for shipment of airplane parts and sections.

The equipping of box cars with: (1) Steel linings to accommodate loading squipment for automotive and farm implement parts; (2) passenger trucks, steel wheels, brake equipment, steam and signal lines to permit handling in passenger trains for movement of vital shipments.

The use of light-weight alloy and high-tensile steels, thus reducing the light-weight of cars without sacrificing strength.

All of these improvements have made a vast difference in the carrying capacity of freight cars and in their ability to travel safely and with a minimum of failure at high speeds. In particular, the installation of the new AB-type brakes, the use of cast-steel truck sides, the increase in size of couplers, and the development of improved draft gears, have made it possible for the railroads to carry swiftly and efficiently the tremendous traffic of the past forty months.

Performance Records Are Established

The new performance records achieved by the railroads during World War II are generally familiar to all, but in any discussion of freight cars, attention may be drawn particularly to the following achievements which could not have been possible without the improvement in freight cars considered above.

The revenue ton miles handled by Class I railroads was about 339¼ billion in 1922; 333½ billion in 1939; and estimated at about 630 billion in 1942. During the same years the Chicago, Burlington & Quincy handled approximately 12 billion, 8½ billion and 15¼ billion ton miles, respectively.

The net ton miles per freight train hour for Class I railroads in 1922 was 7,479; in 1939, 13,450; and for 11 months of 1942, 16,223. During these same years the Burlington's net ton-miles per freight-train hour were 8,644, 12,727 and 17,127 respectively.

As to net tons per freight train on all Class I railroads, the 1922 figure was 676; in 1939, 813, and for the first 11 months of 1942 the net tons per freight train had increased to 1,035. On the Burlington the net tons per freight train in periods 1922 and 1939 averaged 727 and in 1942 increased to 1,029.

The average daily miles per freight car on all Class I railroads increased from 26.9 in 1922 to 47.9 for the first 11 months of 1942, and on the C. B. & Q. from 30.7 in 1922 to 55.9 during 1942.

In every-day terms, the Class I railroads in 1942 handled 33 per cent more ton-miles than the previous record year of 1941, and more than 1½ times the volume moved in 1918 when there were over one-half million more freight cars in service than there are today.

These figures speak for themselves in support of the improvements that have ben made in the freight car equipment owned by American railroads since World War I, and reflect the efficient work performed by the Association of American Railroads, car construction

engineers, Car Department Officers' Association and the supply companies who are so vitally interested in car construction and materials.

In conclusion, I am sure that it is generally agreed that the railroads of the United States have done a remarkable job in handling the large volume of traffic and if given the consideration they are entitled to, there is no doubt that they will continue this performance.

Getting Increased Car-Miles Per Car Day

By R. L. Wink*

In 1917, the Chicago & North Western had an ownership of 70,961 freight cars as compared with present ownership of 46,048 cars, a decrease of 24,913 cars, or 35.2 per cent. The approximate average capacity per car on December 31, 1917, was 39.2 tons, and on December 31. 1942, 46.9 tons, an increase of 7.7 tons per car, or 19.6 per cent.

This increased carrying capacity per car has been brought about by retirement of the smaller capacity all-wood cars and the construction of modern all-steel and composite steel freight cars.

Notwithstanding the fact that our ownership of freight cars has been greatly reduced, we have been able to meet the demands of increased traffic, owing to the greater capacity in present cars and increased average miles per car per day.

During 1917 our average mileage per car day was 30.4 miles, while in 1942 it was 43.2 miles, or an increase of over 42 per cent. This is due to the improved type of equipment now in service as compared with the type of car in service in 1917, at which time there was a large number of wood cars in service, making it necessary to hold cars out of service for repairs more frequently than is necessary with present equipment of improved design, constructed with improved materials.

While our records are not complete as to the percentage of bad-order cars to ownership in 1917, it is our recollection that they were approximately 6½ and 7½ per cent. As of February 1, 1942, the percentage of bar orders to cars owned was 4.4 per cent.

The present war has brought on added responsibilities to railroad personnel as a whole and particularly to car-department supervisors and inspectors who are responsible for the selection, maintenance and proper loading of cars, especially those which are required for transporting explosives, guns, tanks, mechanized equipment and other various types of lading for the armed forces; also heavy steel plates and shapes for vital war industries.

As this evening has been set aside for the discussion of car department operation, some mention should be made of the delays resulting from car defects, particularly hot boxes. On the C. & N. W. we have no definite information as to the mileage made per hot box during the period of World War I; however, our records indicate that considerable progress has been made in improving lubrication of cars and reducing hot boxes.

During the year 1940 we experienced a total of 2,343 hot boxes with an average of 217,873 miles per hot box. In May, 1941, a central packing renovating plant was installed with modern facilities for cleaning, packing and filtering oil for lubrication of journal boxes on passenger and freight train cars in accordance with specifications set up in A. A. R. Rule No. 66. During the first full year of operation, that is 1942, a total of 1,695 hot boxes were reported on freight cars which produced an average of 366,468 miles per hot box, or an increase over the year 1940 of 148,595 miles, or 40 per cent. I think this is typical of what can be accomplished with the installation of modern facilities. We consider proper facilities of first importance, but it goes without saying that an efficient organization and interested personnel to man the facilities are of utmost importance to get final results.

* Superintendent car department, Chicago & North Western, Chicago.

Greater Availability of Passenger-Train Cars

J. A. Deppe*

All who are interested in the operation of railroads know that present day requirements with respect to the volume of passenger-train business handled has increased to the point where the railroads and the Pullman Company have had to make available every unit of equipment that can be used in the transportation of our armed forces, civilian traffic, baggage, express and mail.

Increased business means that each car must perform

* Superintendent car department, Chicago, Milwaukee, St. Paul & Pacific.

much more work than it did before. It is questionable whether assistance can be expected through the building of additional equipment, and it is therefore of prime importance that the maximum number of existing cars be kept available for service at all times.

The shopping of cars for general overhauling and painting must be continued if the passenger equipment of the country is to be maintained up to the standard required to render the service it is being put to today. However, this will have to be accomplished by having only the minimum number of cars in shop at one time to permit of highest numerical availability for service. The Milwaukee, with an ownership of 968 passenger-train cars, now has not more than 35 cars in shop at one time for overhauling and repairing. This is based on shopping cars each 24 months. In spite of our aim, it is found not practical to shop all cars within this limit because of certain cars not being available due to unusual demands. The equipment is now being kept out of shop longer than the allotted time in some cases.

The handling of cars through shops has been accelerated by closer co-operation between the transportation department and the Milwaukee passenger shops. This has made possible the reduction of time between taking out of service and taking into shops from 7.52 days to 1.81 days. The time of an average car in shops undergoing general repairs has been reduced from 26.17 days to 19.00 days by closer scheduling of operations. All this amounts to a greater number of cars available for service. Further improvements in time saving in the shopping operation are being worked out.

Keeping cars out of shop for longer periods plus a greater use of the cars has forced more repair work upon the coach yards. Therefore our efforts must be directed towards making repairs at coach yards to a greater extent than has been done in the past. The maintenance of the running gear of the cars particularly must be taken care of at the terminals. This work has to be accomplished in the quickest possible time because the cars have to be ready on short notice and frequently are doubled out of the yard instead of being allowed to remain in their regular assigned trains with reasonable lay-over time to permit of more time for whatever maintenance and servicing is required.

Emphasis must be placed on the importance of each railroad doing its full share in maintaining the running gear of both home and foreign passenger train cars, taking advantage of every opportunity, such as when cars may be held for certain movements, to see that wheels, brakes, couplers, draft gears, steam heating and water supply equipment is in good repair and that when the cars are placed in service they will go through to destination without the trains having to be delayed in making repairs to cars that should have been taken care of initially.

The Pullman Company undoubtedly has a difficult time bringing their cars to shops for overhauling and must depend on all railroads doing their full share in properly maintaining this equipment, with special emphasis on the maintenance of trucks, couplers, draft gears and brakes.

A great many passenger-train cars of necessity must be handled in dead-head movements and oftentimes in freight trains, and proper care should be taken to see that damage to wheels from sliding is protected against. This winter has demonstrated the necessity for more care being taken to prevent damage due to freezing of heating and water-supply equipment in cars. Some cars have been damaged because equipment was not properly drained when it was to be kept off steam, such as in the case of movement in freight trains. This has resulted in such cars being kept out of service until repairs could be made, and, of course, is costly and results in waste of critical materials.

The cleaning of cars is important and a good cleaning job should always be done. Also, cars should be properly supplied with drinking water, ice, paper cups, etc. This has particular reference to equipment that is to be used in the special movements handling men in the armed forces. They deserve all the comforts and conveniences we can give them. Don't forget that many of these boys had previously been accustomed to riding in some of our best trains when every comfort and convenience was to be had and we must continue giving them the best possible service.

Today we are working each passenger-train car a great deal more than we formerly did. If everyone does his just share in properly maintaining the cars now in use, we can continue giving satisfactory service, help win the war and make satisfied passengers who will patronize the railroads both now and in the future.

Speed Up Repair-Track Work

By F. G. Moody*

There is good and sufficient reason for predicting that the number and percentage of bad order cars will gradually increase, unless car-repair facilities and methods are improved to the extent necessary to compensate for shortage of material and labor.

No attempt should be made at this time to modernize car repair plants completely by replacing old and obsolete heavy machine tools, but I dare say there are few, if any, of our larger shops and repair tracks which are not sorely in need of additional small tools, such as high-speed jacks, welding machines, rivet forges, riveting hammers, air motors, motor hoists, and numerous other small tools. Wholesale placement of orders for these items is not suggested, as it is believed careful study will show that a relatively small quantity strategically located will suffice, but these are some of the items which should and must be provided to offset the shortage of labor and to expedite and increase output of repaired cars.

The more intensive utilization of all freight cars coupled with a substantial decrease in the number of cars now receiving general repairs has already resulted in an increasing number being taken out of service on account of bad order, and there are still a large number of cars in service that are from 25 to 30 years old. Under normal conditions, these cars would have been taken out of general service long before this and it is reasonable to expect that as a result of overloading based on actual physical condition, greater mileage and higher speeds, they will become bad order at a more rapid rate than heretofore.

Under present conditions, these old worn-out cars cannot be replaced or rebuilt in kind, but in their present advanced stage of deterioration and obsolescence they require frequent repairs which results and will continue to result in an ever-increasing number of cars marked bad order. To compensate in the fullest degree possible for shortage of labor and increased amount of work with which we are now confronted and which must be done, careful study and planning on the part of supervisors in an effort to obtain maximum use of exist-

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ing facilities is of paramount importance. In many cases, much may be accomplished through slight re-arrangement of tools and facilities. For example, the rapidly increasing number of wheel changes being found necessary calls for consideration of the question of improvements in storage and handling facilities.

Mounted wheel storage tracks should be conveniently located in relation to service and repair tracks where wheels are changed. Suitable hoists or cranes should be provided for quick and efficient loading and unloading of mounted wheels and other heavy materials. At secondary and smaller repair tracks, simple hoists transfer dollies, etc., which will greatly speed up the work and reduce labor required to change wheels, truck sides and truck bolsters, can often be made from available scrap and obsolete materials.

As a means of preventing avoidable waste of man-hours, adequate transportation should be provided. In many cases this can best be accomplished by furnishing company-owned automobiles and delivery-type trucks for the use of employees who are required to travel relatively long distances in the performance of their duties, especially at large terminals, and when called upon to make emergency repairs to cars at remote locations.

Tail Wagging the Dog

By R. D. Bryan*

The condition faced by the nation with regard to industrial production other than rail transportation to meet changed requirements relative to class and type of product as well as acceleration in the production of those products, is one that was not so readily expanded or geared to the demands that have to be met by a nation at war on a collosal scale. Entire new plants of great magnitude as well as extensions and improvements on existing plants, had to be provided, all of which required enormous amounts of materials, much of it being of the same class as that used by railroads for the construction and proper maintenance of power, equipment and roadways. The necessary diversion of those materials has left little available for the railroads which have been compelled to get along in some instances with no allocations and in others with meager quantities.

Reasonably accurate figures reflecting anticipated demands for increased transportation indicate what railroads will have to accomplish in the near future and, while we are all familiar with the efforts that we have been putting forth to meet the nation's requirements, we do not wish to do any side stepping by saying that we have done all that we can with what we have to do with.

The national administration does not look with favor on, nor will they approve, any additional major plant construction. Consequently, materials formerly allocated to such projects should be made available to the railroads to the extent that it can be shown beyond question of doubt that the materials are needed for additional car construction and maintenance. If this necessity is not recognized and met, we will have a condition aptly described by "The tail will be wagging the dog."

We are fully cognizant and appreciative of the conscientious understanding and assistance that has thus far been accorded railroads on the part of the War Production Board, Office of Defense Transportation and other agencies in procuring the quantities of materials and supplies that has under existing conditions been available for such allocation. We do not hesitate to express an optimistic view to the effect that they will not only continue to lend an understanding ear to our applications but sincerely hope that they will find it possible to liberalize their allocations to the extent that will be needful if the railroads are to render the service demanded by the war effort to hasten victory which must be ours.

* Mechanical assistant, Atchison, Topeka & Santa Fe.

Enginemen Change Their Diesel Demands

A STEP down in the demands of the enginemen for extra men on Diesel-electric locomotives marked the hearings this week before the emergency board at Chicago. When the case was assigned to the board, the engineers were demanding an assistant engineer on each unit of a Diesel electric locomotive but when they began their testimony they outlined their demand as only one assistant engineer on the leading unit of a locomotive.

Another change in the demands of the engineers pertains to the brake testing of the prime mover of the Diesel locomotive for determining the horsepower which would be used as a basis for wages. Under the original demand, the existing engines would be returned to the manufacturer, taken out of the locomotive and be given a brake test. This demand was modified to eliminate the necessity of taking Diesel locomotives out of service, the engineers stating that they would accept the rated horsepower of the manufacturer in determining wages on all existing Diesel locomotives but would insist upon the brake test on all new locomotives.

The brake test for determining the horsepower of Diesels has caused considerable confusion because of inadequate details. As originally described, it was suggestive of a demolition test that would have to be conducted on a pony brake. Under the modified description, the prime mover would be run at maximum operable r. p. m. and output obtainable with all limiting adjustments in the fuel control and governing system completed and fixed or sealed for delivery to the railroad for actual operation. The purpose of the test would be to determine whether the rated horsepower includes an overload capacity which could be used as a basis for wage computation. The test, under the modification, can be made on a pony brake or a dynamometer.

Witnesses for the engineers testified in support of the horsepower basis for computing wages on Diesels and against the weight-on-driver basis. The railroads, in cross-examination, have taken the position that tractive effort or the work done by the locomotive as measured by the dynamometer car is a better method of determining output since such a result eliminates power consumed in generating electricity for heating and lighting—two factors that should not be attributed to the work, duties or skill of engineers.

Witnesses for the engineers included H. M. Jacklin, professor of automotive engineering at Purdue university, who described the technical aspects of Diesel electric locomotives; J. P. Shields, assistant grand chief engineer of the brotherhood, who described the physical layout and characteristics of Diesels and the duties of

engineers; and numerous union officials who testified as to conditions on specific railroads.

Cross examination of the employees' witnesses revealed that the engineers demand for extra men, as amended, would involve the employment of 196 men in the Southeast alone, instead of 100 in the Southeastern and Western regions as estimated by the employees, while the adoption of horsepower as the basis of pay on Diesels would precipitate countless disputes as to what the actual basis was in particular cases because variables such as altitude, and grade of fuel oil, affect horsepower.

Concluding witnesses for the employees on March 23, were B. F. Franke, an engineer of the Burlington and Alvanley Johnston, grand chief of the brotherhood. Mr. Johnston contended that because Diesels are a new form of power they require a new rate of pay and the railroads should have consulted with the employees before fixing the rate of pay applicable to Diesels. On cross-examination it developed that the employees have no agreement with the railroads which requires them to negotiate new rates of pay with the employees when a new form of power is introduced and that the railroads were within their rights when they fixed the rates of pay on Diesels. At the same time the employees were not prevented from demanding new rates under the Labor Act. Mr. Johnston contended that safety demands that a fireman be in the cab and an assistant engineer be in the engine room of all Diesels at all times. He was of the opinion that the B. & O. accident at Dickenson, Md., would have been avoided if the fireman had been in the cab.

Firemen Change Their Demands

Following the action taken by the engineers in changing their demands, the firemen appeared before the board upon the completion of the engineers' case and modified their demands. In their opening statement the firemen took the position that the use of a fireman-helper should be required wherever essential to safe operation; but that where the issue involved only efficiency of operation, the employment of a fireman-helper might be determined on the basis of balancing benefit against cost and that consideration might be given to any possible shortage or better use of manpower in the time of war. Under the revised demands, "(1) At least one fireman or helper should be employed on all locomotives in order that there may be present in or immediately available to the engine cab, an employee trained in train operation and in the production of locomotive power and competent to take over in emergencies. (2) In all multiple unit operation where the work in the engine room is so demanding or remote as to keep the fireman-helper out of the engine cab for a substantial percentage of the time, there should be at least one additional fireman-helper employed."

Because the engineers have taken the position that an assistant engineer should be in the engine room, the firemen described their position as follows: "The above proposition does not contemplate any need to employ a maintainer or any other employee in addition to an engineer and one or more firemen-helpers on these locomotives."

It is the position of the B. L. & F. E. that "all work on locomotives in the way of producing and maintaining power and assisting the engineer in locomotive operation, is work included within the traditional, long-established work of the firemen's craft, and that firemen are trained for and competent to perform all such work and to render any such service as may be required."

Under part (3), the B. L. & F. E. submitted as part of its modified proposition that "at least one additional fireman-helper is necessary for the efficient operation of a two, three or four-unit Diesel-electric or electric locomotive. If more than four units are employed, the number of firemen-helpers to be employed should be made the subject of future negotiations."

Carriers Present Their Testimony

Postponement of the cases last year; the fact that the firemen's case for firemen, the firemen's case where they represent the engineers, and the engineers' case have all been progressed much further and much earlier in the west than in the the other territories; and the revised demands have complicated the carriers presentation and made necessary revisions of testimony and exhibits. The carriers expect first to put on five general witnesses who will deal with the general aspects of all of the cases. Following their testimony, the Eastern region will make a regional presentation which will be particularly concerned with the straight electric and the steam operation in the firemen's case and to some extent with the Diesel electric question in all three cases. Because the Eastern region is not, as such, involved in the engineers' case, regional preparation will be confined to the two cases brought by the B. L. & F. E.

The regional case for the Southeast, which will follow, will involve the engineers' case and the firemen's case for firemen but will not involve the case in which the B. L. & F. E. is representing the engineers. The regional case for the West will involve all three cases. The railroads plan to conclude with two general witnesses.

The first witness for the carriers, on March 22, was H. A. Enochs, chief of personnel of the Pennsylvania, who pointed out that the demands of railroad engineers and firemen for a change in the basis upon which their rates of pay are fixed would result in a pyramiding of earnings. "These employees," he said, "are now paid on the basis of miles or hours, and the rate of pay for the calculation of their earnings is determined by the weight of locomotives on their driving wheels.

"On any one calendar day," he said, "an engineer or a fireman may run, for instance, 150 miles. Without taking into consideration any overtime that might be paid him, he would be paid for the 150 miles, which is one and one-half times the amount of the basic day's pay. Therefore, in this case he makes one and one-half basic railroad days in one calendar day.

"In addition to receiving one and one-half times the basic day's pay in this instance, he may also receive pay for overtime if, in running the 150 miles, he consumes more time than the equivalent of one hour for each 20 miles run. Thus a man may work only 20 calendar days in the month and yet make 30 or more railroad days' pay."

Mr. Enochs amplified his description of the dual basis of pay with an exhibit summarizing the operation of the Burlington's Diesel-powered "Denver Zephyr" on a one-way trip from Denver to Chicago. On this run of 1,040 miles which is accomplished in 16¼ hours, the exhibit showed, eight engine crews, eight engineers and eight firemen are used.

This one-way run from Denver to Chicago, the exhibit showed, covers 1,040 miles. It is made in 16 hours and 15 minutes and the eight engine crews, combined, are on duty a total of 19 hours and 45 minutes. For these 19 hours and 45 minutes on duty, the group of engineers and the group of firemen each receives 10.43 basic days' pay. Total wages paid to the engineers are $88.37, or an average of $4.47 per engineer hour on duty. Total wages paid to the firemen are $70.99, or an average of $3.59 per fireman hour on duty.

Sir Edward Beatty Dies at 65

Chairman of the board of Canadian Pacific retired from the presidency of road because of ill health in May, 1942—With C. P. R. since 1901

Sir Edward W. Beatty

SIR EDWARD BEATTY, K.C., G.B.E., chairman of the board of the Canadian Pacific, died in Montreal on March 23 at the age of 65. He resigned from the presidency of the road in May, 1942, because of ill health and, although he had not been active in public affairs since that time, he remained as chairman of the board.

Sir Edward was elected to the presidency of the Canadian Pacific in 1918. He was immediately faced with the problems of post-war adjustment—one of which brought in its wake the consolidation of all other important Canadian railways into one government-owned system, thereby complicating his task of maintaining the C. P. R. on a satisfactory competitive basis. He was at the head of this great transportation system during the prosperous years from 1925 to 1929, when the company's earnings reached their highest peak, and also during the years of extreme depression which followed. During his term of office the Canadian Pacific's rail, shipping, telegraph, hotel and other services were expanded into the world's most widespread transportation system, to which has now been added an efficient air line system which will undoubtedly be made world-wide after the present war is ended.

During the lean years of the depression and prior to the outbreak of the present war, Sir Edward saw the difficulties of Canada's transportation enterprises as arising, largely, from expansion beyond the abilities of Dominion production at that time to sustain so extended a plant. It was his conviction that the solution lay in the elimination of wasteful services and, especially, in the curtailment of unnecessary duplications. To this end he campaigned with great vigor for curtailment of competitive services between the two principal Canadian railway systems, and considerable progress was made in this direction. He also advocated unification of the two railways into one comprehensive system, but in this advocacy he met opposition. Discussion was still active, however, up to the outbreak of war when, of course, the great increase of traffic made the question—temporarily at least—an academic one. For the present, there is no surplus of transportation facilities to cause concern to foresighted and conscientious transportation managers.

Edward Wentworth Beatty was born in Thorold, Ont., on October 16, 1877, and was the first Canadian-born president of the C. P. R. He was educated at the University of Toronto and the Osgoode Hall Law School, becoming a member of the Ontario Bar in 1901. He entered the service of the Canadian Pacific in the same year as an assistant in the law department and was appointed assistant solicitor in 1905; general solicitor in 1910; general counsel in 1913; and vice-president and general solicitor in 1914. He became a director and member of the executive committee in 1916 and, in 1918, succeeded Lord Shaughnessy to the presidency of the road. He became also chairman of the board upon the latter's death in 1924.

Sir Edward devoted his exceptional talents and energies in many directions—not only commercially, professionally and industrially, but in the fostering of philanthropic and social-service enterprises as well. He was chairman of the Consolidated Mining & Smelting Co. of Canada; president of Canadian Airways, Ltd.; and was associated as an officer or director in many other business organizations, including the Bank of Montreal, the Hotel Waldorf-Astoria Corporation (New York) and the Sun Life Assurance Company of Canada. In the fields of education and public welfare, he was Chancellor of McGill University (a position he still held at the time of his death); president of the Boy Scouts Association of Canada; president of the Royal Victoria Hospital, Montreal; honorary president of the St. John Ambulance Association; the Canadian National Institute for the Blind; and the Montreal Boys' Association; chairman of the National Advisory Board of the Salvation Army, and was a leader in many other social enterprises.

Sir Edward's title of King's Counsel (K.C.) is indicative of his standing in the legal profession. In June, 1935, he was elevated by the King to knighthood, the Grand Cross of the Order of the British Empire being bestowed upon him. Sir Edward was also a member of a Norwegian order of knighthood.

The Case Against a Wage Increase

Temporary character of present traffic, carriers' need for capital, and pay comparisons are cited in the negative

THE railroads, this week, continued to present evidence to the emergency board in opposition to the demands of the non-operating employees for a wage increase of 20 cents an hour, a minimum of 70 cents an hour and a closed shop. Testimony by the carriers was begun on March 17 when, at their request, the parties agreed to postpone the employees' testimony supporting the closed shop and that of the short lines, Railway Express Agency, Inc., and private car companies to permit the railroads to present their testimony on the wage increase demands of the non-operating unions coincident with that phase of the employees' case. The employees presented their wage demands between March 1, when the hearings started, and March 17, at sessions held each morning. The carriers plan to complete their testimony on the wage demand by March 26, after which the unions will present testimony in support of the closed shop and the short lines, Railway Express Agency, Inc., and the private car lines will be heard.

In presenting their testimony, the railroads have presented a number of witnesses who testified that the present prosperity of the railroads is temporary and that at the close of the war much, if not all of the added traffic they are now handling will shift back to former or to new channels, with the result that earnings will likewise fall off in proportion.

The first witness for the railroads, as reported in the *Railway Age* of March 20, was Dr. Julius H. Parmelee, director of the Bureau of Railway Economics of the Association of American Railroads. He testified as to the general railroad situation, including the economic and financial status of the railroads, contending that to the extent that the present high levels of railway traffic and earnings have been stimulated by war activity, the economic stimuli behind them are artificial. He also showed that the increased earnings of the railroads in 1941 and 1942 have not been utilized to make large increases in dividend payments to stockholders.

Ton-Miles Per Capita Have Declined

The decline in the volume of railroad traffic per inhabitant of the continental United States during the period from 1911 to 1942 and the temporary nature of present traffic were cited by Joseph G. Kerr, chairman of the Southern Freight Association, as reasons against granting the demands of the non-ops. Ton-miles of revenue freight, he said, showed a slow but steady growth through the years prior to 1930, reaching a peak in 1929 but it is significant to note that on a per capita basis, the peaks were reached in the war years of 1917-1918, and with no great change in 1920.

In 1941, he continued, total ton-miles reached the highest peak, due largely to war traffic but on a per capita basis, the figure of 3,585 ton-miles per person is actually less than that of six of the years of the 1921-1930 decade and only slightly in excess of any of the years of the 1931-1940 decade.

This situation, he said, was due to a large extent to the expanded operations of trucks. The rail tonnage originated increased generally through 1929 but the index, based upon 1921 as 100, rose to only 142.42 while that of the trucks increased to 356.4. In 1932 the rail index dropped to 68.7 while the truck index ranged from 373.9 in 1930 to 559.2 in 1939. In 1941, although the railroads had begun to feel the effects of war traffic, the rail index was only 130.6 as contrasted with the truck index of 629.4. Continuing he said:

"There was an astounding growth in railroad freight traffic last year. For each inhabitant of the United States, the railroads performed on the average, a service of 4,777 ton-miles, the highest figure ever reached. Yet this peak figure can be accounted for only by traffic incident to the war and by the assumption, on the part of the railroads, of the loads of other forms of transportation. So far as the rails are concerned, this heavy traffic is temporary and will largely disappear with the war.

"Passenge traffic, too, rose greatly, the total representing the transportation of each person in the country for a distance of 400 miles. This again is the highest annual figure on record. But it is a matter of common knowledge that this large volume of passenger traffic is due to movements of the armed forces under orders and on furlough; of civilians, many of whom now are forced to use the trains instead of private automobiles; and, of course, to necessary travel directly incident to the war. The substantial increase is purely temporary and is bound to cease with the war."

In addition to its temporary nature, Mr. Kerr likewise emphasized the unusual composition of current railroad traffic. He said:

"The character of the traffic presently carried by the railroads is so different from that normally transported in the past or from that which reasonably may be expected in the future as to justify the statement that the present situation is so abnormal as to prohibit its use as a base upon which the predicate anything for the future.

"Government traffic now represents a larger proportion of railroad tonnage than ever before. This government traffic consists of arms, munitions, sustenance, supplies, construction materials, and many other commodities connected with the training, arming and sheltering of our armed forces at home and abroad. It is augmented by the enormous tonnage developed in connection with the Lend-Lease program. It is further augmented by the tremendous tonnage of raw and semi-processed materials entering into the production of war goods of all kinds, including cargo and other ships.

"As a further indication of the abnormal and temporary character of present rail traffic, it may be said that because of war activities in the Pacific, the volume of export freight moved to Pacific ports now approximates 30 per cent of the total handled through all ports, as compared with 7 per cent in 1941. All other ports, many of which were little known in prior years, are doing a tremendous business. These activities mean, generally, long rail hauls, but the activities are of temporary character only.

"The railroads have necessarily, though temporarily, taken on the loads of other forms of transportation. But new ocean-going vessels are being built on a large scale, and facilities are available to keep on building them even after the war is over. New pipe lines are rapidly being extended almost everywhere. Thousands of additional trucks will be available to transport freight in competition with the rails to a greater extent than in the past. Many new barges and other facilities will be available

for transporting freight on inland waterways; and air transport will doubtless be an ever-increasing competitive factor.

"There can be no question but that, with the return of peace, a very considerable part of the traffic now moving by railroad will cease to exist; a heavy volume will go back to other channels of transportation; and the remainder will be subject to far greater competition than we have experienced in the past. Much of this may take place long before final and complete victory over our enemies is attained."

Cross-examination of Mr. Kerr was intended to show that because other wars have been followed by periods of prosperity the present war also will be followed by prosperity and that truck competition is not as severe as the witness pointed out because many railroads are themselves engaged in the trucking business.

Earnings Have Been Overstated

Land grant deductions and transit privileges cloud the earning figures of the railroads, according to A. F. Cleveland, vice-president in charge of traffic of the Association of American Railroads, and as a result the actual earnings of the industry in 1942 have been overstated by a substantial amount. Such overstatement has occurred, the witness continued, because while regular commercial rates were charged on certain government traffic, claims are being made that much of this traffic should have moved at reduced charges under the so-called "land grant" provisions. A further element in the situation is the fact that, in a number of instances, government traffic has been placed in storage at an intermediate point short of its ultimate destination. The railroads, he said, have taken into their accounts as 1942 revenues the inbound charges based on the local rates to the storage point but have yet to perform a further haul for little or no additional revenue. Indeed, Mr. Cleveland stated, in some cases the additional service may even involve a refund of a part of the charges already collected. Continuing, he said:

"With the large increase that has taken place in government traffic, the General Accounting Office has not been able to keep its post audits up to date. There will be many bills where the post audit will result in reducing the amounts which have been taken into the accounts of the carriers as actual money earned. While it is not possible to say just how much they finally may be reduced on account of land grant deductions, I am sure that the total amount in dispute is from $100,000,000 to $150,000,000."

Without New Capital, Railroads Can't Compete

The major long-term problem confronting the railroads is the re-establishment of their earning power, according to John W. Barriger, III, vice-president of the Union Stock Yards & Transit Co. Earning power, the witness said, must be at a level sufficient throughout future years to provide substantial quantities of capital obtained directly from income. It must also be sufficient to restore credit so that the carriers will have access to the capital funds of private investors.

Mr. Barriger estimated that capital expenditures of not less than one billion dollars will be required annually for many years to carry out programs of development and modernization adequate to permit the railroads to meet future competition successfully. The amount, he said, represents less than four per cent of the present investment in railway property.

A net railway operating income of not less than one billion dollars per year, he testified, will be required to produce that sum for capital purposes. With investment in railroad property amounting to more than twenty-six billion dollars, an average earning power of at least one billion dollars is necessary to provide a fair return on that investment. Railway earning power of one billion dollars per year will provide gross income of a little more than double the annual requirement of six hundred million dollars for all fixed and contingent charges. He went on to say:

"The reasonableness of re-establishing one billion dollars as minimum net railway operating income of the railroads is confirmed by the rental of $894,000,000 per annum paid for the properties operated by the United States Railroad Administration during Federal Control. Book value of railway investment at that time approximated nineteen billion dollars. That total has increased by nearly seven billion dollars, or more than one-third. Certainly when it is recalled that a rental of $900,000,000 had the seal of Congressional and commission approval as reasonable compensation for these railroads more than a quarter of a century ago, one billion dollars now represents a very moderate minimum earning power. Should future earnings maintain such a level over a continuous period of near-future years, railroad credit will be re-established and the entire industry will have the financial strength necessary for its continued progress."

The need of the railroads for an annual average of one billion dollars of new capital has been made even more urgent by the war, Mr. Barriger said:

"The vast industrial efforts of World War II have been centered upon the development of ships, tanks, automotive vehicles and planes; the plants which produce them; and the skilled personnel who operate and service them. Great additions have also been made to the pipe-line system. Technological developments of materials and power sources and manufacturing methods have been greatly stimulated by war necessities. These developments are peculiarly available and beneficial to non-rail transportation agencies. Such facts hold grave competitive implications for the railroads.

"The automobile industry has been integrated into the manufacture of munitions and military equipment on a huge scale. These plants will be available for post-war conversion of factories into the manufacture of commercial and pleasure highway vehicles of a type and at a production cost which will represent a marked competitive advance over pre-war standards and make them stronger rivals of the railroad than before.

"When peace returns, great fleets of ships and planes will be released for commercial domestic transport. The post-war technical and production factors surrounding them portend traffic threats no less serious than those pertaining to future highway traffic. Four-motored bombers carry six thousand horse-power of propelling capacity. Only the largest and newest locomotives are comparable to a plane in this respect. The airplanes which America is now producing annually have a horsepower capacity greater than that of the railroads' entire stock of locomotives which represents the accumulation of more than a generation.

"The entire passenger train service revenues are in danger of collapse under post-war competition by planes for long haul, and motor cars and busses for short haul, travel. Passenger traffic is second only to coal as a contributor to railroad revenues, and mail and express stand high on the list of components of gross receipts. Any widespread losses within these factors of passenger train service revenues will have serious adverse financial effects on the carriers, their employees and the public, and will also handicap the development of freight service. The former class of traffic must be protected as well as the latter. Large amounts of capital will be required to do so.

"Post-war economic problems may cause unemployment which the government will endeavor to absorb by programs of public works largely directed to the provision and improvement of facilities used by competitive transportation agencies. Highways, airports, waterways, dams, and power projects have been favored developments of this character in the past and probably will be of the future. Each will add to the problems which will then confront the railroads to retain all classes of traffic and haul them at a profit. Railroad revenue is the prize which every competitive development seeks to share or capture."

Probably greater advances have been made in the technical development of the railways over the last

twenty years than in the preceding century, Mr. Barriger said. But, he continued, because of lack of adequate capital, much too small a proportion of the total investment is represented by the best and most modern part of it. "After the war," he said, "railways will be confronted with 'superliners,' both aerial and marine, 'super-highways,' 'superpower' and 'superpipelines.' The former carriers must be transformed into 'super-railroads' too."

The quality and economy of railway transportation is basically determined by the plant and equipment which produces it, Mr. Barriger stated. Continuing, he said:

"Restricted access to capital during the decade of the thirties prevented those carriers from availing themselves fully of their opportunities for maximum development. War conditions are hampering their physical development now. After the war ends, the railways will be faced with intensified competition but at the same time will have enlarged opportunities for improvement of their properties. They must be in a position to utilize such opportunities in order to meet competition efficiently and to fulfill their duty to the public. Earning power sustained on at least the level which I have recommended is vital to the procurement of the capital essential to transform the railways into the efficient transportation machines which the future will require. Present income must be protected and used to restore railway credit so that it will be equal to the tasks ahead."

The general wage changes made on the railroads in the last 25 years were explained in detail by L. W. Horning, manager of personnel of the New York Central, to support his contention that in that period, operating and non-operating employees have received similar treatment. He said:

"From December, 1917, to December, 1942, the rates of pay of all train and engine service employees, the so-called 'operating' group, have shown an average increase of 116.2 per cent. During the same period the rates of pay of non-operating railway employees have shown an increase of 116.0 per cent. These figures show the cumulative effect of all wage rate changes from the time when the government took control of the railroads and began fixing wage rates for employees in the industry.

"These figures show that the operating employees and the non-operating employees have been treated just about alike since 1917. The same relative position as regards rates of pay has been maintained."

Comparison with Wages in Canada

Dealing first with all classes of railway employees, Mr. Horning stated that average weekly earnings in the first ten months of 1942 amounted to $44.08 on the American railways and to $35.78 on the Canadian railways. Furthermore, the witness continued, "In every year since 1916 the average compensation per week of United States railway employees was more than that of the Canadian employees, and the spread has widened in recent years." He went on to say:

"Similarly in every year from 1916 to 1941, inclusive, the average compensation per hour of United States railroad employees was more, and the spread has widened year by year since 1922, until in 1941 the employees in this country were earning 82.3 cents per hour, as compared with 68.0 cents per hour in Canada. Figures to show the hourly earnings of employees in Canada for the first ten months of 1942 are not yet available. However, the hourly earnings of railway employees in the United States for the first ten months of 1942 averaged 90.2 cents. This reflects the full effect of the mediated increases granted employees on December 1, 1941."

Mr. Horning emphasized the similarity of employment and working conditions on the railways of the United States and of Canada:

"In Canada, however, Canadian railway workers, starting with a lower level of earnings in 1929, suffered more than the maximum 10 per cent deduction taken by United States railroad workers. A deduction of 10 per cent was made effective in Canada for train and engine service employees and telegraphers on December 1, 1931. In May of 1933 the deduction was increased to 20 per cent.

"In November, 1933, this was decreased to 15 per cent, and in that month the same deduction of 15 per cent was extended to all classes of employees. This deduction remained in effect until January 1, 1935, when it was reduced to 12 per cent, and on May 1, 1935, to 10 per cent. The 10 per cent deduction remained in effect until February 1, 1937, after which, by agreement, this deduction was gradually reduced, but not until April 1, 1938, was the deduction fully restored and were the basic rates adopted by agreement in the period 1926 to 1929 again in effect.

"It will be seen, therefore, that a greater reduction was made for a longer period in Canada than was made in the United States. Furthermore, there were no increases in the basic rates of pay of Canadian railroad employees in 1937, 1941, or since, similar to those increases which United States railway workers received in those years."

Pay 16 Per Cent Above January, 1941

Although the non-operating employees received an increase of 16 per cent in their basic wage rates since January, 1941, and although their average hourly, weekly and annual earnings are at all-time peaks, they are now seeking further wage advances amounting to $466,000,000 a year, J. E. Monroe, assistant director of the Bureau of Railway Economics, testified. In addition, he said, the minimum wage increase of 30 per cent sought by the operating employees would amount to $260,000,000 annually, bringing the total wage increase demands now being made upon the railroads up to $727,000,000, not including the demands for an increase in the minimum wage.

The railroads already have made wage increases since January, 1941, amounting to $369,000,000 a year, Mr. Monroe continued. That total includes, he stated, the wage increases granted in December, 1941, as a result of the findings and mediation of an Emergency Board, those increases amounting to $233,000,000 for the non-operating employees and to $87,000,000 for the operating employees. The cost of vacations granted various classes of railway workers was stated at $24,000,000 annually, while wage increases granted to groups not covered by the December, 1941, agreement and the increase in the minimum hourly wage which became effective March 1, 1941, added still another $25,000,000 to the railway payroll. Testifying further he said:

"For the non-operating employees as a group the wage settlement of December, 1941, increased the wage rates in effect in January, 1941, by about 16 per cent. If the wage rates of the non-operating group of employees are further increased by 20 cents an hour, as now demanded, there will be produced an average rate 48.5 per cent greater than the average rate in effect in January, 1941."

In the non-operating group, the witness stated, average earnings in the year ended October 31, 1942, amounted to $1,497 for maintenance of way employees; $1,505 for dining car employees, this figure excluding tips; $1,511 for stationary engine and boiler-room employees and shop and roundhouse laborers; $1,981 for clerical and station employees: $2,232 for shop crafts employees; $2,322 for signalmen; $2,336 for floating equipment or marine employees; and $2,377 for telegraphers. In the operating group, he continued, corresponding average earnings amounted to $2,638 for trainmen and switch tenders; $2,769 for firemen and hostlers; $3,486 for conductors; and $3,812 for engineers and motormen. The over-all average earnings were $1,898

annually for the non-operating employees, and $3,032 for the operating employees. He said further:

"The annual earnings of non-operating railway employees averaged $740 in 1916; $1,422 in 1929; and $1,898 in the year ending with October, 1942. The 1942 average represented an increase of 156.5 per cent over 1916, and an increase of 33.5 per cent over 1929. If an additional increase of 20 cents an hour were granted the non-operating employees, it would have the effect of raising their 1942 earning level from $1,898 to an average of $2,426. Such average annual earnings, $2,426, would be 27.8 per cent greater than for 1942; 42.9 per cent greater than for 1941; and 54.6 per cent greater than the average earnings for 1940."

The witness emphasized that not only were the earnings of railway employees now at the highest level in history, but also that the purchasing power of those earnings was greater now than ever before:

"The cost of living in the first ten months of 1942 was 48.7 per cent higher than it was in 1916. But from 1916 to 1942 the average weekly earnings of non-operating railway employees increased from $14.16 to $37.00, a rise of 161.3 per cent. With an increase, since 1916, of 161.3 per cent in average weekly earnings and of only 48.7 per cent in the cost of living, the purchasing power of the average weekly earnings of non-operating railway employees was 75.7 per cent greater in 1942 than it was in 1916.

"Similarly, in the first ten months of 1942, the cost of living was 5.5 per cent lower than it was in 1929. But from 1929 to 1942 the average weekly earnings of non-operating railway employees increased from $27.28 to $37.00, a rise of 35.6 per cent. With an increase, since 1929, of 35.6 per cent in average weekly earnings and a reduction, in the same period, of 5.5 per cent in the cost of living, the purchasing power of the average weekly earnings of non-operating railway employees was 43.5 per cent greater in 1942 than it was in 1929. In other words, the cost of living can rise 43.5 per cent over the average for the first ten months of 1942, and non-operating railroad employees, insofar as their purchasing power is concerned, still will be as well off as they were in 1929."

Railroad Wages Comparatively High

Present railroad wages compare favorably with those of other industries, according to the testimony of Robert A. Sayre, head of the Labor Statistics department of the Division of Industrial Economics of the National Industrial Conference Board. On the basis of average weekly earnings, he said, those of railroad wage earners are greater than the corresponding earnings of factory wage earners.

Railway wage workers in October, 1942, earned an average of $44.72 a week, according to Mr. Sayre's exhibits, while in the same month the weekly earning of workers in manufacturing industries averaged $42.09. In only six of the industrial classifications included in Mr. Sayre's totals were average weekly earnings of factory workers greater than those of railroad workers.

In the other industrial classifications covered by Mr. Sayre's figures, the average weekly earnings of employees were lower than those received by railroad workers. In these industries, the average weekly earnings of employees were as follows: $44.15 in the rubber industry, $42.97 in the iron and steel industry and $26.30 in the silk industry.

Although the average weekly earnings of railroad workers were shown to be greater than those of the workers in manufacturing industries, Mr. Sayre's exhibit showed that a much higher percentage of railroad employees lived in rural areas and the smaller cities and towns than was the case with employees in manufacturing industries. Comparing non-operating railway employees with employees in manufacturing industries, Mr. Sayre's figures showed that 19.90 per cent of railroad employees lived in towns of less than 1,500 population, while only 2.36 per cent of the industrial employees lived in such small towns; 29.79 per cent of railroad employees and only 9.39 per cent of industrial employees lived in cities of less than 5,000 population; and 47.71 per cent of railroad employees and only 27.92 per cent of industrial employees lived in cities of less than 25,000.

R. R. Employees in the High Brackets

The percentage of employees in the higher wage brackets, D. P. Loomis, executive director of the Association of Western Railways, testified, is roughly twice as great in the railroad industry as in those industries covered by the Social Security Act. The proportion of total workers who earned $2,600 or more in 1941, he said, was 12.1 per cent on the railroads and 6.7 per cent in industry; those who earned $2,200 or more included 22.1 per cent of railroad workers and only 10.5 per cent of industrial workers; and those who earned $1,800 or more included 35.4 per cent of railroad employees and only 17.5 per cent of industrial employees.

Average full-time earnings per railroad employee amounted to $2,036 in 1941, Mr. Loomis said. For the same year, he continued, corresponding employee earnings averaged $1,855 in the power and gas industries; $1,755 in all transportation industries; $1,707 in the contract construction industry; $1,672 in all manufacturing industries; $1,638 in finance-banking, insurance, security brokerage and real estate; $1,593 in federal, state and local government; $1,586 in the communications industries; $1,580 in mining; $1,493 in miscellaneous occupations; $1,405 in wholesale and retail trade; $1,043 in service occupations; and $677 in agriculture. For all of these occupations, average full-time earnings per employee in 1941 amounted to $1,478 or $558 less than the corresponding railroad average of $2,036.

This same relative situation has existed since 1929, Mr. Loomis stated. "The average," he said, "was consistently greater than the all-industry average for each year, and by an increasing margin during the period. In 1929, railroad employees' average earnings were 20 per cent above the all-employee average. In 1937 they were 37 per cent higher, and in 1941 38 per cent higher than the average for all workers. While the all-employee average in 1941 was only $17 greater than in 1929, the railroad employees' average increased by $289 between those two years."

In the same connection Mr. Loomis pointed out that while, between 1929 and 1941, the cost of living had dropped 14.1 per cent, the average annual earnings of all employees increased 1.2 per cent, and the average annual earnings of railroad employees increased 16.5 per cent. All-employee annual earnings did not equal or exceed the 1929 level until 1941, but railroad employees exceeded their 1929 earnings in 1937 and in each subsequent year.

From 1929 to October, 1942, Mr. Loomis continued, the average weekly earnings of railroad workers increased from $31.71 to $44.77. As contrasted with the weekly earnings of $44.77 received by rail workers in October, 1942, the average weekly earnings of workers in all manufacturing industries in that same month amounted to $38.89.

Mr. Loomis presented to the Emergency Board a comparison of the earnings of railroad employees with the pay of farm laborers and income per farm. This comparison showed that in 1942 the average railway employee received $2,176 in wages, while the average income per farm in the United States, including both total

cash available and the value of products retained, was $1,718. The comparison further showed that maintenance of way employees on the railroads, with 1942 earnings averaging $1,497, received more than twice as much as the average annual pay, $673 of farm laborers in that year.

For September, 1942, Mr. Loomis continued, maintenance of way laborers on the railroads averaged $111.55 in wages, section men averaged $111.94, and extra gang men averaged $115.50. On October 1, 1942, the average monthly wage rate paid to farm labor throughout the nation amounted to $59.25.

Cost of 70-Cent Minimum

Establishment of a 70 cent minimum hourly wage in the railroad industry would increase railroad costs by $170,000,000 a year, R. F. Welsh, secretary of the Association of Western Railways, testified. "If all non-operating employees receiving less than 70 cents an hour had their rates of pay increased to that figure," said Mr. Welsh, "the total cost of so doing for the month of October, 1942, would have been $15,951,304. It is generally recognized, however, that ordinarily the number of employees is less during some other months of the year than in October, and for that reason it might be fairly assumed that the figures shown for October, 1942, would constitute approximately one-tenth of the year. On this basis, the annual cost would be approximately $160,000,000, not including the payroll taxes, which would be approximately $10,000,000, or a total of $170,000,000. In other words, the granting of the non-operating employees' request for a 70-cent minimum wage would cost the carriers here represented $170,000,000 per year."

Mr. Welsh discussed in some detail certain of the minimum wage rates fixed under the provisions of the Davis-Bacon Act and the Walsh-Healey Act, pointing out their variations as between industries and between localities. Continuing he said:

"Under the Davis-Bacon Act we found that since January 1, 1941, rates per hour for common labor have been fixed for 1,510 counties in the United States or for almost one-half of the 3,071 counties in the nation. In these decisions, 701 fixed rates of 50 cents per hour or less, and, in 470 counties, rates of 45 cents or under were found by the Secretary of Labor to be the prevailing wage.

"In the South Atlantic region, rates of 50 cents or less were fixed in 233 out of the 271 counties for which rates were established. Similarly, rates of 45 cents or less were fixed in 189 counties out of the 271. In the East South Central area, rates of 50 cents or less were fixed in 115 out of the 138 counties for which rates were established.

Similarly, rates of 45 cents or less were fixed in 86 counties out of the 138. In the West South Central area, rates of 50 cents or less were fixed in 237 out of 268 counties covered by the decisions. Rates of 45 cents or less were fixed in 168 counties out of the 268.

"Furthermore, in addition to being minimum rates, the rates fixed by the Secretary of Labor are also treated, under government contracts, as maximum rates. A ruling of the Comptroller General provides, in effect, that the government will not reimburse a contractor or sub-contractor for the payment of rates in excess of those established by the Secretary of Labor."

Referring to wage rates fixed under the Walsh-Healey Act, Mr. Welsh pointed out that the Act provides that the rates to be fixed as minima shall not be less than the minimum wages determined to be the prevailing minimum wages for persons employed in similar work or in the particular or similar industries or groups of industries currently operating in the localities in which the materials, supplies, articles or equipment are to be manufactured or furnished.

Again discussing territorial variations, Mr. Welsh cited, as an illustration, the Walsh-Healey minimum rates established for the fertilizer industry. "In that industry," he said, "a minimum of 30 cents was fixed in 13 states and in parts of two others; a minimum of 40 cents was fixed in 22 states; and a minimum of 50 cents was fixed in 11 states. The geographic divisions are definite."

Among others who testified for the railroads were R. B. White, president of the Baltimore & Ohio; J. D. Farrington, chief executive officer of the Chicago, Rock Island & Pacific; and L. L. Morton, assistant vice-president of the Louisville & Nashville.

Simplified Accounting for Government Travel

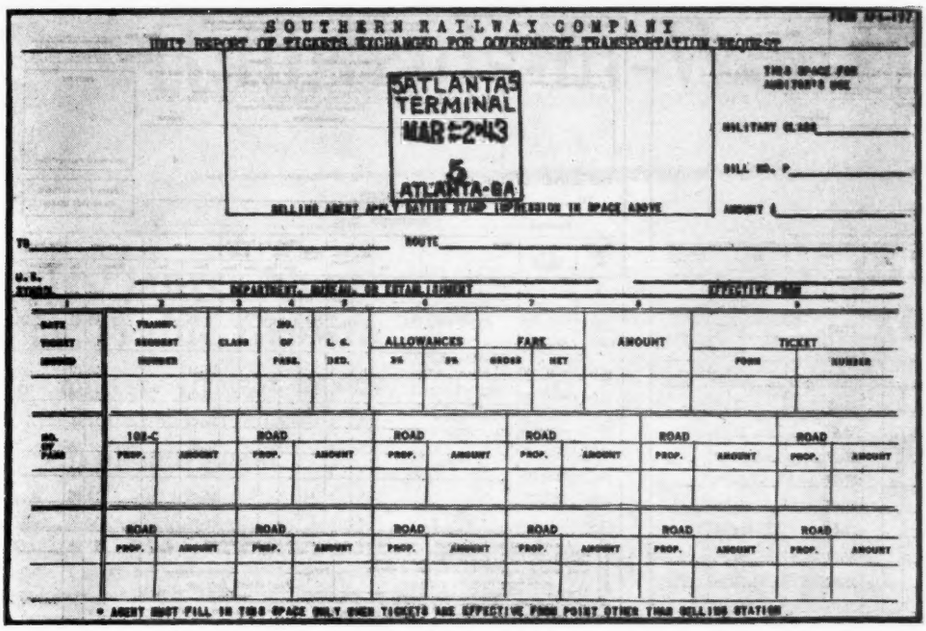
SIMPLIFIED ticket-agency and audit-office procedures in connection with the reporting and accounting for passenger transportation furnished on United States government transportation requests were adopted recently by the Southern's Passenger Accounting Department. The plan embodies separate accounting for the government traffic, and coordinates the preparation of bills against the government with the allocation of revenue therefrom to interested railroads through the interline passenger account.

It was developed under the direction of the Southern's comptroller, T. H. Seay, who prepared for the information of all railway accounting officers an outline which has been distributed by the Finance, Accounting, Taxation and Valuation Department of the Association of American Railroads.

The need for the simplified procedures had grown out of the constantly increasing volume of passenger transportation furnished upon government transportation requests during the past two or three years. Many roads have found it advantageous to make complete separation at ticket agencies and in the audit office as between government transportation and all other transportation. The Southern's plan is based upon experience with several suggested plans; and it is believed to embrace all of the good points previously developed while at the same time eliminating many of the disadvantages which have occasioned adverse criticism.

The plan is bottomed on Form APA 197, the unit report of tickets exchanged for government transportation requests. This form, shown in one of the illustrations, is the initial document prepared *in part by the ticket agent* who exchanges the passenger ticket for the government transportation request and *in part by the passenger accounting office*. Every effort has been made to reduce the work of the ticket agent to a minimum. His station stamp supplies the name of the selling agency and the date of sale; and he has merely to list the destination, route, government symbol and department involved, and make five other entries in columns 1, 2, 4, and 9, showing in turn the date on which the ticket is issued, transportation request number, number of passengers, the ticket-form number and the ticket's serial number. This is entirely a pencil job done very rapidly. Other entries are made after the forms reach the audit office.

The agency retains a copy of each form 197, and that



SOUTHERN RAILWAY COMPANY

DAILY REPORT OF TICKETS EXCHANGED FOR GOVERNMENT TRANSPORTATION REQUEST

ATLANTA TERMINAL MAR 5 1943 5 ATLANTA-GA

BILLING AGENT APPLY DATING STAMP IMPRESSION IN SPACE ABOVE

THIS SPACE FOR AUDITOR'S USE

MILITARY CLASS

BILL NO. P

AMOUNT $

TO ROUTE

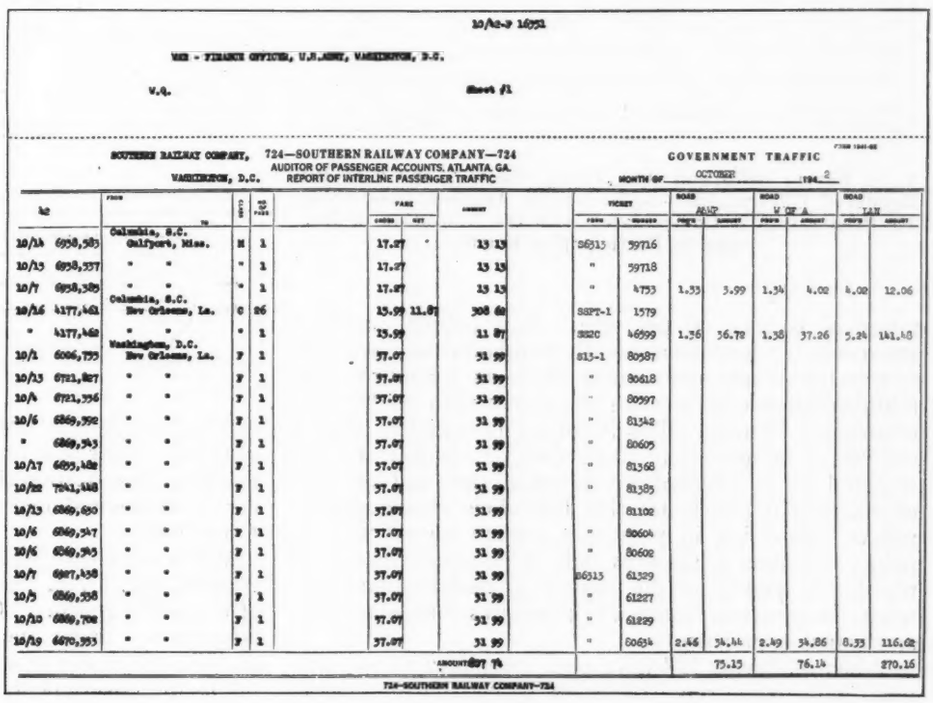
U.S. STATION DEPARTMENT, BUREAU, OR OTHER ESTABLISHMENT EXECUTIVE ORDER

1	2	3	4	5	6	7	8	9
DATE TICKET ISSUED	TRANSP. REQUEST NUMBER	CLASS	NO. OF PASS.	L. C. DED.	ALLOWANCES 25	25	FARE GROSS	NET	AMOUNT	TICKET FORM	TICKET NUMBER

NO. OF PASS	102-C PROP.	102-C AMOUNT	ROAD PROP.	ROAD AMOUNT	ROAD PROP.	ROAD AMOUNT	ROAD PROP.	ROAD AMOUNT	ROAD PROP.	ROAD AMOUNT	ROAD PROP.	ROAD AMOUNT
	ROAD PROP.	ROAD AMOUNT	ROAD PROP.	ROAD AMOUNT	ROAD PROP.	ROAD AMOUNT	ROAD PROP.	ROAD AMOUNT	ROAD PROP.	ROAD AMOUNT	ROAD PROP.	ROAD AMOUNT

* AGENT MUST FILL IN THIS SPACE ONLY WHEN TICKETS ARE EFFECTIVE FROM POINT OTHER THAN BILLING STATION

Form APA 197, the Initial Document, Prepared in Part by Ticket Agent and in Part by Passenger Accounting Office



10/A2-9 16752

VIA - FINANCE OFFICER, U.S.ARMY, WASHINGTON, D.C.

V.Q. Sheet #1

SOUTHERN RAILWAY COMPANY, WASHINGTON, D.C.

724—SOUTHERN RAILWAY COMPANY—724
AUDITOR OF PASSENGER ACCOUNTS, ATLANTA, GA.
REPORT OF INTERLINE PASSENGER TRAFFIC

GOVERNMENT TRAFFIC

MONTH OF OCTOBER 194 2

Ad	From / To	Class	No Pass	Fare Gross	Fare Net	Amount	Ticket Form	Ticket Number	ROAD A&NP Prop'n	ROAD A&NP Amount	ROAD W OF A Prop'n	ROAD W OF A Amount	ROAD T&N Prop'n	ROAD T&N Amount
10/14	6958,583 Columbia, S.C. / Gulfport, Miss.	H	1	17.27		13 13	S6313	59716						
10/15	6958,557 " "	"	1	17.27		13 13	"	59718						
10/7	6958,389 " "	"	1	17.27		13 13	"	4753	1.33	3.99	1.34	4.02	4.02	12.06
10/16	4177,462 Columbia, S.C. / New Orleans, La.	C	26	15.99	11.87	308 62	SSPT-1	1579						
"	4177,488 " "	"	1	15.99		11 87	S820	46999	1.36	36.78	1.38	37.26	5.24	141.48
10/1	6006,759 Washington, D.C. / New Orleans, La.	F	1	37.07		31 99	S13-1	80587						
10/13	6721,827 " "	F	1	37.07		31 99	"	80618						
10/4	6721,356 " "	F	1	37.07		31 99	"	80597						
10/6	6869,592 " "	F	1	37.07		31 99	"	81342						
"	6869,543 " "	F	1	37.07		31 99	"	80605						
10/17	6695,482 " "	F	1	37.07		31 99	"	81368						
10/22	7041,488 " "	F	1	37.07		31 99	"	81385						
10/13	6869,680 " "	F	1	37.07		31 99		81102						
10/6	6869,547 " "	F	1	37.07		31 99	"	80604						
10/6	6869,595 " "	F	1	37.07		31 99	"	80602						
10/7	6927,458 " "	F	1	37.07		31 99	S6313	61329						
10/5	6869,558 " "	F	1	37.07		31 99	"	61227						
10/10	6869,708 " "	F	1	37.07		31 99	"	61229						
10/19	6870,353 " "	F	1	37.07		31 99	"	80634	2.46	34.44	2.49	34.86	8.33	116.62
						AMOUNT $87 74				75.15		76.14		270.16

724-SOUTHERN RAILWAY COMPANY-724

Carbon Copy of Government Bills Sheet 1, Showing How Form Is Extended to Include Additional Columns for the Distribution of Interline Revenue

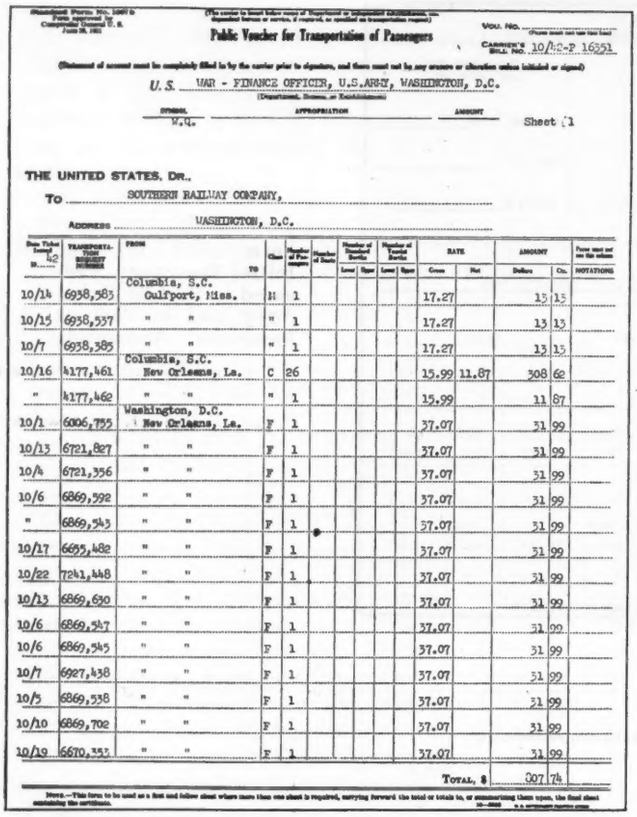
is the only record it requires; for it is not concerned with the revenue and it is therefore not necessary to pass the revenue figures through the agent's accounts. At agencies where daily reports are sent to the audit office, form 197 is attached to the agent's stub of each ticket and sent to the auditor with other daily transmittals.

Individual ticket numbers covered by government transportation requests appear on daily listings without value and the opening and closing ticket numbers are balanced out in the audit office.

At the small stations where agents prepare their reports monthly, the forms 197 are serially numbered, and the number of each form is entered on the ticket report to permit ready balancing of opening and closing numbers. In these cases all serial numbers of forms 197 are charged to ticket agents who must account for them as they do for ticket numbers.

Upon receipt in the audit office, forms 197, attached to agents' stubs and original government transportation requests, are accumulated on an issuing station basis for weekly, semi-monthly, or monthly periods, depending upon the volume of sales at the station involved. At the end of the specified period for each station, all forms 197 are sorted according to destination, class, and government department against which the bill must be made. With all like items thus brought together, the forms 197 are checked by classification clerks against a preestablished division formula card file.

The extent to which rates and divisions may be thus determined has been found by the Southern to be "surprising." Recent tests indicate a normal repeat expec-



Public Voucher for Transportation of Passengers

VOU. NO. ____

CARRIER'S BILL NO. 10/42-P 16351

U. S. WAR - FINANCE OFFICER, U.S.ARMY, WASHINGTON, D.C.

(Department, Bureau, or Establishment)

SYMBOL W.Q. — APPROPRIATION — AMOUNT

Sheet #1

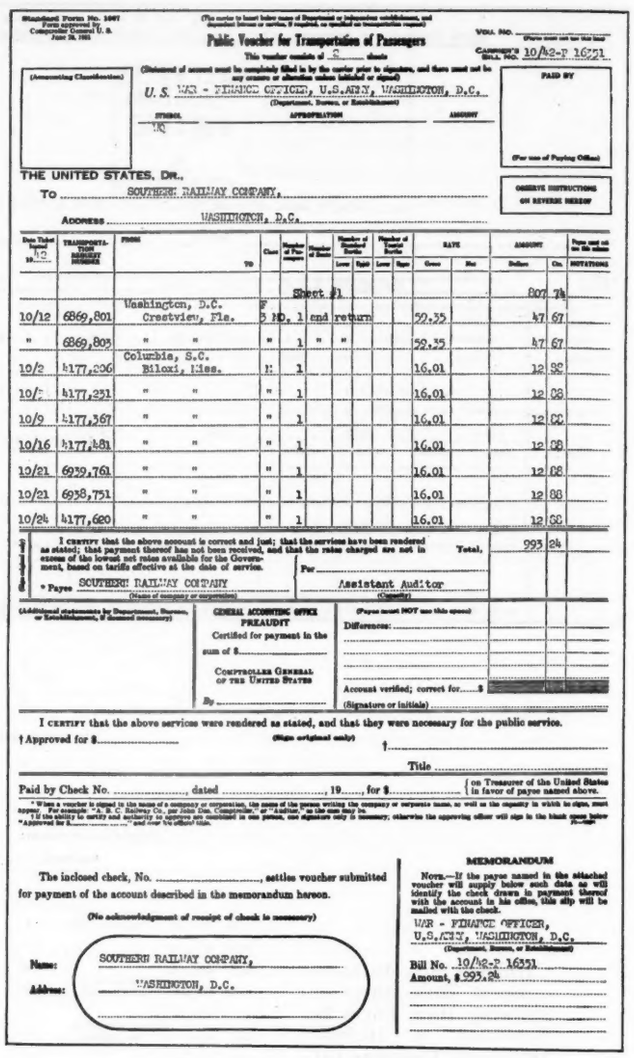
THE UNITED STATES, DR.

To SOUTHERN RAILWAY COMPANY,

Address WASHINGTON, D.C.

Date Ticket Issued 19—	Transportation Request Number	From / To	Class	Number of Passengers	Number of Stops	Number of Tickets Lower	Number of Tickets Upper	Number of Berths Lower	Number of Berths Upper	Rate Gross	Rate Net	Amount Dollars	Amount Cts.	Items must not use this column NOTATIONS
10/14	6938,585	Columbia, S.C. Gulfport, Miss.	H	1						17.27		13	15	
10/15	6938,537	" "	"	1						17.27		13	15	
10/7	6938,385	" "	"	1						17.27		13	15	
10/16	4177,461	Columbia, S.C. New Orleans, La.	C	26						15.99	11.87	308	62	
"	4177,462	" "	"	1						15.99		11	87	
10/1	6006,755	Washington, D.C. New Orleans, La.	F	1						37.07		31	99	
10/13	6721,827	" "	F	1						37.07		31	99	
10/4	6721,356	" "	F	1						37.07		31	99	
10/6	6869,592	" "	F	1						37.07		31	99	
"	6869,543	" "	F	1						37.07		31	99	
10/17	6695,482	" "	F	1						37.07		31	99	
10/22	7241,448	" "	F	1						37.07		31	99	
10/13	6869,630	" "	F	1						37.07		31	99	
10/6	6869,547	" "	F	1						37.07		31	99	
10/6	6869,545	" "	F	1						37.07		31	99	
10/7	6927,438	" "	F	1						37.07		31	99	
10/5	6869,538	" "	F	1						37.07		31	99	
10/10	6869,702	" "	F	1						37.07		31	99	
10/19	6670,353	" "	F	1						37.07		31	99	
											TOTAL, $	807	74	

Note.—This form to be used as a first and follow sheet where more than one sheet is required, carrying forward the total or totals to, or summarizing them upon, the final sheet embodying the certificate.



Public Voucher for Transportation of Passengers

This voucher consists of 2 sheets

VOU. NO. ____

CARRIER'S BILL NO. 10/42-P 16721

(Accounting Classification)

U. S. WAR - FINANCE OFFICER, U.S.ARMY, WASHINGTON, D.C.

(Department, Bureau, or Establishment)

SYMBOL W.Q. — APPROPRIATION — AMOUNT

PAID BY

(For use of Paying Officer)

THE UNITED STATES, DR.

To SOUTHERN RAILWAY COMPANY,

Address WASHINGTON, D.C.

OBSERVE INSTRUCTIONS ON REVERSE HEREOF

Date Ticket Issued 19—	Transportation Request Number	From / To	Class	Number of Passengers	Number of Stops	Number of Tickets Lower	Number of Tickets Upper	Number of Berths Lower	Number of Berths Upper	Rate Gross	Rate Net	Amount Dollars	Amount Cts.	Items must not use this column NOTATIONS
										Sheet #1		807	74	
10/12	6869,801	Washington, D.C. Crestview, Fla.	F	5	NO. 1	and	return			59.35		47	67	
"	6869,803	" "	"	1	"	"				59.35		47	67	
10/2	4177,206	Columbia, S.C. Biloxi, Miss.	H	1						16.01		12	80	
10/7	4177,251	" "	"	1						16.01		12	08	
10/9	4177,367	" "	"	1						16.01		12	00	
10/16	4177,481	" "	"	1						16.01		12	08	
10/21	6939,761	" "	"	1						16.01		12	08	
10/21	6938,751	" "	"	1						16.01		12	88	
10/24	4177,620	" "	"	1						16.01		12	00	
											Total,	993	24	

I CERTIFY that the above account is correct and just; that the services have been rendered as stated; that payment thereof has not been received, and that the rates charged are not in excess of the lowest net rates available for the Government, based on tariffs effective at the date of service.

Per ____

Assistant Auditor (Capacity)

* Payee SOUTHERN RAILWAY COMPANY (Name of company or corporation)

(Additional statements by Department, Bureau, or Establishment, if deemed necessary)

GENERAL ACCOUNTING OFFICE PREAUDIT

Certified for payment in the sum of $____

COMPTROLLER GENERAL OF THE UNITED STATES

By ____

(Payee must NOT use this space)

Differences: ____

Account verified; correct for.....$ ____

(Signature or initials) ____

I CERTIFY that the above services were rendered as stated, and that they were necessary for the public service.

† Approved for $____ (Sign original only)

† ____

Title ____

Paid by Check No. ____, dated ____, 19____, for $____ { on Treasurer of the United States / in favor of payee named above.

* When a voucher is signed in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "A. B. C. Railway Co., per John Doe, Comptroller," or "Auditor," as the case may be.

† If the ability to certify or approve and to sign as payee are combined in one person, one signature only is necessary; otherwise the approving officer will sign in the blank space below "Approved for $....." and over his official title.

The inclosed check, No. ____, settles voucher submitted for payment of the account described in the memorandum hereon.

(No acknowledgment of receipt of check is necessary)

Name: SOUTHERN RAILWAY COMPANY,

Address: WASHINGTON, D.C.

MEMORANDUM

Note.—If the payee named in the attached voucher will supply below such data as will identify the check drawn in payment thereof with the account in his office, this slip will be mailed with the check.

WAR - FINANCE OFFICER, U.S.ARMY, WASHINGTON, D.C.

(Department, Bureau, or Establishment)

Bill No. 10/42-P 16351

Amount, $ 993.24

U. S. Forms 1067b and 1067, Being Sheets 1 and 2 of Bill Rendered Government—As Shown in Another Illustration, Its Preparation is Co-ordinated with the Allocation of Revenue to Participating Roads

tation of at least 60 per cent. It is pointed out that items which repeat from month to month need never go to a technical rate and division clerk, as it requires only a limited knowledge of rates and divisions to use the pre-established formula. The Southern is confident that it can reduce by more than 50 per cent the number of items required to be checked by technical rate and division clerks; and it anticipates that this alone should greatly relieve congestion in passenger accounting offices. It points out that it requires only a nominal amount of training to qualify for the position of classification clerk, while the position of rate clerk requires intensive study and actual experience.

When all forms 197 have been completed as to minimum information required, either by classification clerks or rate and division clerks, and have been sorted according to selling station, destination road and station, and government department, a summary is made on the last of the 197's thus grouped. The summary shows the total number of passengers, each participating road's proportion, and each participating road's total amount for all tickets between common stations and of identical value.

Then comes that phase of the plan which coordinates the preparation of bills against the government with interline reports showing the allocation of the revenue to interested railroads. The coordination is accomplished in connection with the making of carbon copies of U. S. Form 1067 which is the "Public Voucher for Transportation of Passengers."

The forms on which the carbon copies of this voucher are made are extended to include columns for the distribution of the interline revenue. This material is prepared by typists or machine operators direct from the summary sheets of form 197, which have been previously set up by classification clerks in sheets of a sufficient number of individual items to fill up one sheet of U. S. Form 1067.

When more than 10 items are to be included in a government bill, U. S. Form 1067b becomes the first page of the public voucher. Only one such supplemental sheet is permitted under the latest government instructions; and thus there can now be only 29 items included in one bill to the government.

The Southern's experience indicates that, if such were permitted, it would be possible in many cases to extend government bills to occupy more than one supplemental sheet.

After the foregoing procedure has been completed, the U. S. Forms 1067 and 1067b are detached from the sets and put through the usual process whereby they are sent out for collection. The duplicate sheets with the interline data in their additional columns are in lieu of A. A. R. Standard Form AD-1. They are sorted in the customary manner for the preparation of summary sheets (A. A. R. Standard Form AD-12) for interested carriers. There is no occasion for delay in sending them out, for they would not be subject to draft until payment is received from the government. Meanwhile, however, the connecting lines can proceed with such things as the checking of lifted coupons and the preparation of passenger-traffic statistics.

Railroads-in-War News

Army Figures Show War Traffic Growth

RRs' military freight about four times last war's peak movement

During the first 12 months of the present war the American railways handled 41,000,000 tons of Army freight, the Transportation Corps announced in a week-end press release in which its accomplishments are surveyed in more detail than in Lieutenant General Somervell's report of the year's operations, mentioned in *Railway Age* of March 13, page 522.

The volume of Army freight handled by the railroads during the first year of the war was compared by the Transportation Corps with 11,224,427 tons handled in the period from July, 1918, to June, 1919, which included the peak months of the freight movement of World War I. The heaviest monthly movement of the last war was 1,445,535 tons, while the largest monthly movement during the first year of the present war was 5,600,000 tons.

During the first 12 months of the last war, the railroads handled 2,734,527 troops, including inductees, as compared with 11,641,838 in the same period of the present war, the statement continued. Of the troops moved during the year recently ended, almost 60 per cent traveled on special trains. The railroads were called upon to provide 21,000 special trains, in which were included 197,288 passenger cars and 79,443 baggage and freight cars. More than 55,000 open top cars were included in these trains, reflecting the large numbers of trucks, tanks, and heavy guns now included in the equipment of a military unit.

At present the Army is giving bus lines about 500,000 passengers a month, the statement continues, while about 400,000 tons of Army freight is handled monthly by commercial trucks. In addition, inland waterways and air transport are being utilized where conditions are favorable. To illustrate the extent to which air transport is employed where alternative facilities are not available, the Army Air Forces at the same time issued a press release in which attention was called to its achievement in moving in two months more than 6,000 tons of equipment across the mountains of New Guinea to troops in battle areas. Where troops required a month and a half to make the journey on foot, planes crossed the island from Port Moresby to Buna in less than an hour, it was said, and in one day 36 planes moved 308 tons of supplies to the front.

During the first year of American participation in World War I, the Transportation Corps pointed out, about 1,725,000 measurement tons of Army freight was sent overseas, as compared with 10,474,923 measurement tons in the same period of this war. The largest monthly total to date in the present war was 1,554,127 tons, as contrasted with the 450,446 tons reported for the peak month of the last war. Cargo shipped to overseas troops now averages 82 pounds per man per day, it was indicated, as compared with 43 pounds in the comparable period of World War I.

Attention is called in the release also to the liquid condition of freight movement through the ports now in contrast to the serious congestion prevailing in the principal Atlantic ports in 1917, when as many as 200,000 loaded freight cars were immobilized awaiting opportunity to unload, as contrasted to an average of 15,000 cars now. In explanation of this "healthy traffic situation," the report cited the "vigilance" and "prompt action" of the railroads in nipping in the bud potential tie-ups. Another factor mentioned was the current distribution of export freight to many primary ports and sub-ports on both the Atlantic and Pacific coasts, in contrast to the use of two points of embarkation in the last war, both on the North Atlantic.

Changes since 1918 in the character of freight moved to the ports were mentioned in the release. During the first year of the present war, it was stated, the quantity of petroleum products shipped overseas was more than 80 times that shipped in the same period of the last war. In that time thousands of airplanes have been shipped, as compared to one plane in the first year of World War I. A substantial part of the tonnage being moved now is heavy equipment, such as tanks, trucks, planes, and big guns, requiring special railroad cars and unloading facilities, again in contrast to the last war's first year, when most of the heavy equipment provided for the A. E. F. was built abroad.

Zoning Plan for Caustic Soda Shipments Postponed

The effective date for control of shipments of caustic soda in tank cars and tank trucks, set for April 1 under the War Production Board's General Transportation Order T-1, as reported in *Railway Age* of February 6, page 330, has been postponed to May 1 to allow producers additional time in which to arrange exchanges of customers to bring their business within the zones set up in the order, the WPB announced March 19.

Interpretation No. 2 of this order, issued March 22 by the WPB, provides that the boundary of any town or city referred to in the lists of zones included in the original order shall be deemed to include the rail switching limits at place mentioned.

Hears Many Views About Florida Canal

House subcommittee gets much conflicting evidence on proposed project

Conflicting statements regarding the time required to construct the Florida Barge Canal, the extent of which critical materials would be diverted to the project, and the relief which the proposed waterway would bring in the way of alleviating the East-Coast petroleum shortage featured recent hearings before a House appropriations subcommittee which has under consideration the War Department Civil Functions Appropriation Bill for the fiscal year ended June 30, 1944. Although the hearings were made public last week, the full appropriations committee did not follow through in the customary way by reporting the bill to the House at the same time. It is understood that the bill and report were thus held up by the controversy over the Florida Barge Canal, and that the committee expected to vote on that item next week.

With respect to the construction timetable, the subcommittee heard Major General Reybold, chief of the Army engineers, refuse to budge from his previously-expressed view that the canal could not be completed in less than two years. The proposed appropriation of $44,000,000 carried in the bill introduced by Representative Hendricks, Democrat of Florida, looked about right to General Reybold if the work "is done in orderly fashion"; but he feels that the cost might rise to as much as $60,000,000 if the waterway were built "under rush conditions, war conditions." Even on that basis, he does not think the job could be done in less than two years. The War Department sounded out the Bureau of the Budget last fall with respect to the canal, and the answer was "No."

On the other hand, the committee received an elaborate presentation from the canal's proponents, headed by Representative Hendricks in the role of "master of ceremonies," who introduced Major General Charles P. Summerall, retired, now chairman of the Ship Canal Authority of the State of Florida, and Arthur A. Johnson, president of the Arthur A. Johnson Corporation, Long Island City, N. Y. Mr. Johnson's company and associated contractors have done considerable work for the Army; and he asserted his willingness to undertake to complete the Florida canal within 10 months, although his assertion, as Representative Snyder, Democrat of Pennsylvania, pointed out, involved three "ifs." They were: "Providing that we

(*Continued on page 638*)

No Seniority for Women Employees

Such, at any rate, is idea of union magnates—Favor equal pay though

Women employed by railroads, and other transportation industries, must receive the same pay as men who do the same work, insisted union representatives who spoke at the conference held in Washington, D. C., March 18 and 19 under the auspices of the Division of Transport Personnel of the Office of Defense Transportation to discuss the industry's experiences with and opportunities for employment of women in greater numbers to meet the current manpower shortage.

The union leaders, however, did not agree so uniformly on the extent to which women can be employed in different modes of transportation. Railroad labor spokesmen declared that there are many railroad occupations which are not adapted to women. They particularly questioned the effect that seniority rights acquired by women workers during the war might have on the employment of men after peace is restored. The physical dangers which they declared to be associated with many railroad occupations also were mentioned by these union representatives as obstacles to large-scale employment of women in operating work, while their lack of natural mechanical skills and the long period of training required to fit them to replace men were considered automatic bars to using women at many of the mechanical jobs.

If managements do resort to hiring women on a large scale for railroad work, the union leaders insisted, they must provide for adequate training and supervision, and in most cases such employment should be put on a temporary basis so their work during the period of the emergency would not entitle them to post-war seniority rights.

Speakers for all branches of transportation agreed that many more women will be employed by them in the coming year, however, and speakers for the air lines and the local transit operators generally expressed satisfaction with this prospect, as a result of their experiences to date. Opportunities for the employment of women in the trucking industry were considered by its representatives to be limited, and speakers for the warehouse field reported that physical requirements barred women from most of the jobs available in that industry.

Average L.c.l. Load Up Again

The average load per car of l. c. l. freight handled by Class I railroads in January was 20,549 pounds, the Office of Defense Transportation reported on March 23. This figure was an increase over the December average of 20,294 pounds, and was the result of loading 380,914 cars, a decrease of 11,862 from the previous month. The tonnage of l. c. l. freight handled by Class I roads in January dropped slightly from the December total. On the other hand, Class II and III roads, including switching and terminal lines, reported an increase in the tonnage handled, as well as in the average load per car, which was 18,391 pounds as compared with 17,930 pounds in the previous month.

Freight forwarders reported a smaller average load per car in January as compared with December. The figure for January was 41,105 pounds, which was 3,843 pounds above the average for the six months from May to October, 1942.

Revised "Essential Activity" List Sent Draft Boards

"Maintenance of all facilities and production of items needed for the transportation of essential items" is one of the primary categories of essential activities indexed by the War Manpower Commission for the use of U. S. Employment Offices and Selective Service Boards in considering occupational deferment of men liable for military service, the WMC indicated in a March 25 announcement. The revised and detailed lists of essential activities have been prepared to simplify and standardize interchange of information and processing of applications, the statement pointed out.

Plans Greater Use of Embargoes to Speed Release of Cars

Following through from a recent meeting in his office, Interstate Commerce Commissioner Johnson has advised George H. Shafer, president of the National Association of Shippers Advisory Boards, R. R. Luddecke, president of the National Industrial Traffic League, and W. C. Kendall, chairman of the Car Service Division, that I. C. C. agents have been instructed "to recommend embargoes in every case where it is evident that there is unnecessary delay to cars."

Commissioner Johnson had called the meeting to consider a general increase in demurrage rates to prevent car detention; but the discussion led to a recommendation that the use of embargoes would be more effective. Copies of Mr. Johnson's letter have been sent by Mr. Kendall to railroad transportation officers.

Railroads Not Covered in New Version of Absenteeism Bill

Companies furnishing services to the Navy Department have been eliminated in the amended version of the bill, H.R. 1876, to require all Navy contractors to file information with respect to absenteeism, which has been reported favorably from the House committee on naval affairs. The new version's provisions apply only to contractors engaged in the "production" of war materials for the Navy.

As noted in the *Railway Age* of March 20, page 600, Judge R. V. Fletcher, vice-president of the Association of American Railroads, recently asked the committee to amend the bill in such a way as to exempt railroads, it being his understanding that there was never any intention to apply it to transportation companies engaged as public carriers in transporting war materials for the Navy.

The Transport of Britain's 8th Army

Indications are that railways play a significant, but not dominant role

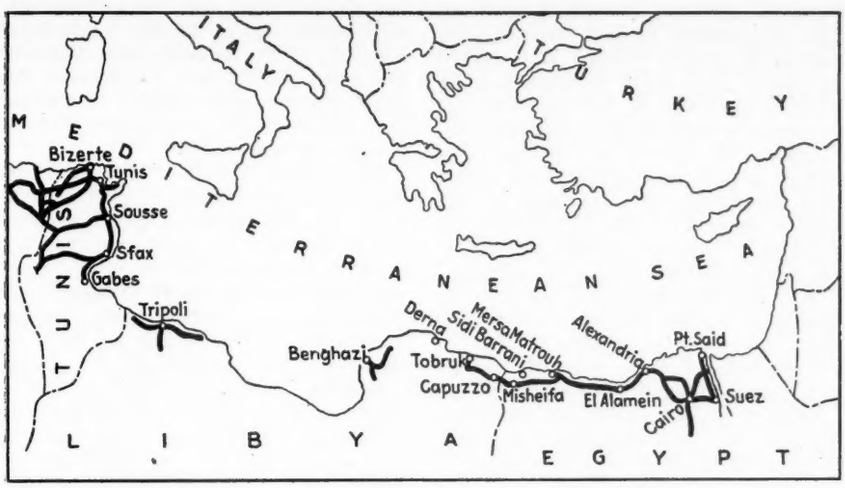
When Prime Minister Winston Churchill returned to London after the Casablanca conference, he commented upon the epic chase by General Montgomery's army of Rommel's Afrika Korps all the way from Egypt to Tunisia. Said he: "Montgomery's army is feeding itself from its base at Cairo, 1,500 miles away, through Tobruk, 1000 miles away and Benghazi, 750 miles away, by a prodigious amount of transport all organized in a manner truly wonderful."

The territory encompassed by this supply line, and the way railroads form links in it, is suggested by the accompanying map (adapted from the Railway Gazette of London). Important as rail carriers are to the supply route, it is evident that they must be largely supplemented by motor and other ancillary transport.

Most important rail link in this route is the Western Desert Railway, running from Alexandria to Tobruk. This line, which before the war extended only as far as Mersa Matrouh, had been completed in 1936. Nothing further was done about extending the line until after the Italians entered the war in June, 1940, and invaded Egypt. As the British Eighth Army pushed the enemy back into Lybia, the importance of extending the existing rail line to the west became evident, since no rail facilities were available between Mersa Matrouh and Benghazi and all supplies had to be carried forward by truck. At Benghazi several short narrow-gage lines built by the Italians extend inland from the coast for a short distance. Between this point and Tripoli, further to the west, there is another gap in existing rail lines.

After the British had established a position around the Fort Capuzzo area, it was decided to extend the railway line from Mersa Matrouh to a point behind the British lines. Work was begun on this project in April, 1941, and in six months the line had been extended from Mersa Matrouh as far west as Misheifa. By November, 1941, the British Eighth Army had taken over the Tobruk garrison and pushed the enemy back as far as El Agheila and the railway line was extended to Bir el Hamid, the plan being to extend it right into the port of Tobruk. In the meantime, however, the Germans counter-attacked and retook Benghazi. After the British army had retreated to the Egyptian border, the Germans completed the railway into Tobruk. There have been reports that plans called for the extension of the railway further westward to Benghazi, but the Railway Gazette reports that no information is now available on this score.

The problem of keeping the British Eighth Army supplied with food, water, ammunition and other supplies was a difficult one. It is estimated that 400 tons every day represents the requirements of a modern motorized division, with an ad-



The Railways of Eastern and Central North Africa

ditional 120 tons in the desert where water is not available.

According to a statement by Lieutenant General Wilfrid Gordon Lindsell, who was in charge of getting these supplies to the British Eighth Army, 4,000 tons of supplies were delivered daily by road and rail to dumps behind the Alamein line. Reserves of seven days' supplies were built up for the fighting divisions. Preparations also had to be made to repair the railway line, which the enemy attempted to destroy. Between Alamein and Capuzzo, the railroad had been blown up in over 200 places. Twenty-eight days after the offensive started, trains were again running as far as Capuzzo and 133,000 tons of supplies had been delivered to stations along the line. Other supplies were received by ship via the port of Tobruk and thence transported by rail to Capuzzo.

Proposal for Post-War Planning Committee in House

Representative Bland, Democrat of Virginia, has introduced House Resolution 183 to create a special House committee to be known as the "Committee on Post-War Economic Reconstruction." Consisting of 14 members appointed by the speaker, the committee would investigate "all matters relating to post-war economic problems."

More Coal Dealers to Get Aid On Freight Charges

The area within which receivers of anthracite coal are permitted to apply for absorption by the government of increased transportation charges due to wartime disruption of coastwise shipping has been enlarged to include New England ports north of and including Stamford, Conn., the Office of Price Administration announced March 23. Dealers within this territory whose yards have no rail connections now can make such application, as well as those receiving coal transshipped from Philadelphia, Pa.

Asks $50,000 for National Railway Labor Panel

President Roosevelt has transmitted to Congress a request for an additional $50,000 for the National Mediation Board for the fiscal year ending June 30, 1944. An accompanying letter from the acting director of the Bureau of the Budget reveals that the money would be used for compensation and expenses of members of the National Railway Labor Panel which was set up to provide wartime procedures whereby disputes can be submitted to emergency fact-finding boards without the necessity for taking a strike vote.

Another Jersey Canal Bill

Representative Auchincloss, Republican of New Jersey, has introduced H.R. 2240 to authorize immediate construction of the "New Jersey Intracoastal Waterway section of the Atlantic Intracoastal Waterway." The bill would authorize an appropriation of $16,451,500 to improve the existing waterway from Cape May harbor to Manasquan inlet, and to construct a new canal connecting the inlet with the South Shrewsbury river.

Meanwhile the House committee on rivers and harbors has made its favorable report on H.R. 2208, the bill introduced by Representative McCormack, Democrat of Massachusetts, to build a cross-Jersey waterway from the vicinity of Bordentown to the vicinity of Sayreville, at an estimated cost of $199,000,000. Nine members of the committee, including Mr. Auchincloss, signed a minority report opposing the McCormack proposal and saying that an alternative along the lines of the Auchincloss proposal would be a "better and less costly" canal.

A. A. R. Educates Army in Packing Freight

The Freight Container Bureau of the Association of American Railroads is conducting a series of seven conferences for members of the Army Transportation Corps to discuss the most efficient ways to pack, crate and load war supplies; the proper construction of shipping containers; and freight handling and inspection. Motion pictures will be used to illustrate impact tests on loads, freight operations and various methods of shipping war supplies to and from rail centers and seaports.

The first of the conferences was held at the Hotel Pennsylvania in New York on March 23-25, to be followed by three-day sessions at the Hotel Statler in Boston, March 31 to April 2; at the Hotel Sherman, Chicago, April 6-8; at the Hotel Olympic, Seattle, April 13-15; at the Hotel St. Francis, San Francisco, April 20-22; at the Hotel Roosevelt, New Orleans, May 4-6; and at the Hotel John Marshall, Richmond, May 11-13.

Edward Dahill, chief engineer of the Freight Container Bureau, will preside at all the meetings and speakers will include A. P. Kivlin, assistant chief engineer, and H. F. Flynn and J. E. Roumillat, engineers of the Bureau; Major J. A. Hurd, chief of the Code Marking Branch, and Captain John K. Mount, chief of the Packing and Packaging Section of the Army Transportation Corps, and L. T. Donovan, a representative of the Mechanical division of the A. A. R.

A. A. R. Member Road Meeting

Arrangements for the operation of 1,200 special sleeping cars for troop movements and 400 Army kitchen cars, to be financed by the Defense Plant Corporation, a subsidiary of the Reconstruction Finance Corporation, were discussed at the special meeting of Association of American Railroads member roads held in Chicago on March 26. The member-road meeting was preceded on the 25th by a meeting of the A. A. R. board of directors.

Proposed plans for the operation of the cars contemplated that the sleepers would be operated by the Pullman Company, while the kitchen cars would be manned by permanent crews of Army personnel. It is anticipated that the cars will replace day coaches now used in troop movements, thus providing additional sleeping facilities for the troops; while the kitchen cars will release baggage cars which are now temporarily equipped for that service.

November Carload 41.4 Tons

If the average carload of freight in November, 1942, excluding l.c.l. traffic, had been the same as it was in that month of 1941, the railroads would have had to supply and move about 145,000 more cars to handle the business, the Office of Defense Transportation pointed out in a March 24 statement analyzing the effect of ODT General Order No. 18.

While loadings of carload freight have been increasing steadily for several years, the ODT said Order No. 18 substantially influenced the high average loading of 41.4 tons per car reported for November, the first month in which that order was in effect. This figure, the highest reported since such statistics have been compiled, compared with 40.6 tons for October, and with 37.6 tons, 40.6 tons, and 41.3 tons for the first, second and third quarters of 1942, respectively.

It was conceded that the reported increase in the carload was attained at the expense of somewhat less efficient car utilization, but this was offset, said the ODT, by the savings in motive power resulting from Order No. 18.

As compared with the same month of 1941, the largest relative increase in the average load per car reported for November, 1942, was in products of agriculture, in which the increase was almost 20 per

cent, the average load jumping from 28.5 tons to 34.1 tons. The average load per car of manufactures and miscellaneous products increased in the same period from 27.9 tons to 32.5 tons, or 16.5 per cent. In the other I. C. C. classifications smaller increases were reported, the least being in products of mines, in which the average load was 54.5 tons in November, 1942, as compared with 54.2 tons in the same month of the year before.

Grain Transportation Advisory Committee

The Office of Defense Transportation and the Interstate Commerce Commission have joined in the appointment of a grain and grain products transportation conservation committee to study grain transportation and practices. The purpose of the committee, in the words of the joint ODT-ICC invitation to members, is "to make a concentrated effort to move the grain of the country with the greatest dispatch and with the minimum use of equipment, manpower, and motive power on the part of the railroads."

The committee members are leading grain traffic men, the chairman being C. A. Lahey, vice-president of the Quaker Oats Company, and the secretary, J. S. Brown, manager of the Chicago Board of Trade. At its initial meeting held recently in Chicago, the committee decided to set up regional committees under chairmen who are also members of the general committee.

Hears Many Views About Florida Canal

(*Continued from page 635*)

have no delay in the procurement of necessary materials; providing that we are not interfered with in the procuring of necessary manpower; and providing that we have suitable priority in the initial transportation of the large volume of construction equipment required and necessary for completion of the work."

Previously, General Summerall had said that the Ship Canal Authority was in possession of bids from Mr. Johnson and his associates, and that the Authority was ready to offer its services to the War Department as prime contractor, "with a guarantee for the construction of this canal in 10 months." Later on, Mr. Johnson said his group had never gone into the total amount of money, but their "estimated cost without contractor's profit is $40,102,840"; and he would accept a liquidated-damage clause on the basis of the 10-months schedule "if the government will give us 100 per cent cooperation," i.e., provided the three "ifs" were met.

Developing his arguments on the need for the canal, General Summerall stated that though the railroads "have performed an almost unbelievable service" with respect to oil traffic, it was "impossible for them to handle all of it." He thinks "we must assume that the railroads have hauled only enough to meet the needs of the armed forces at present, and only a limited amount has gone to our people."

"We believe, and I think it can be substantiated," General Summerall went on, "that the statement has been made by those in authority that the railroads have reached the peak of their ability to transport commodities, especially oil and gas, and that the quantities delivered are diminishing and probably will continue to diminish. We think it is well recognized that the rolling stock is deteriorating. Thousands of cars must be repaired. There are accidents and collisions increasing in number, and the reaction on railroads must be adverse." Neither does the Ship Canal Authority see "how it is possible for pipe lines to substitute for water-borne traffic." In fact the only alternative the Authority can see "is a return to water-borne traffic."

Another of Representative Hendricks' witnesses was Representative Mansfield, chairman of the House committee on rivers and harbors, who was "quite sure" that construction of the canal "is the only reasonable remedy for relieving the great oil shortage in the East within a reasonable time." Even if the construction would require two years, Mr. Mansfield thinks it should nevertheless "be started today." Continuing, he discussed at some length the payments now being made by the government to reimburse oil companies for the difference between rail rates and their former costs of handling the oil by coastwise tanker. There was much talk about these payments which were often referred to as a "subsidy" amounting to some $250,000,000 a year.

In that connection, however, Ralph K. Davies, deputy administrator of the Petroleum Administration for War, later explained that the government had preferred to handle the matter that way rather than to authorize price increases adequate to meet the additional transportation costs. "There are those who do not think the term 'subsidy' is a correct one," Mr. Davies said.

It was nevertheless brought out in Mr. Davies' testimony that transportation costs through the canal would not be as low as the former cost by coastwise tanker, and thus the government's payments with respect to oil shipments would not be entirely eliminated. Mr. Davies' testimony generally expressed PAW's opposition to the canal.

Glenn E. Taylor, director of inland waterway transport for the Office of Defense Transportation, discussed briefly ODT's barge program, saying that all available barges are being used. In response to questions, he told the committee that if the Florida canal were built, new barges would have to be provided for the service. Many figures went into the record at various places as to the number of barges and towboats required and their cost. In one discussion of the subject, Henry Buckman, engineering counsel of the Ship Canal Authority, calculated that, on the basis of a 40-day round-trip between Port Arthur, Tex., and Philadelphia, it would take 1,800 barges and 300 tugboats to deliver 500,000 barrels of oil a day; to haul the East-Coast's daily requirements of 1,600,000 barrels would require 5,760 barges and 1,920 tugs.

The cost of vessels for the 1,600,000-barrels-a-day set-up was put at $486,000,000, but Mr. Buckman said "the railroad subsidy would amount to that much in 20 months." And Representative Mansfield said that's not all, for he anticipates that the government may be called upon to pay for additional railroad equipment if the oil continues to move by rail.

Dr. William Y. Elliott, director of the War Production Board's Division of Stockpiling and Transportation, talked about the larger wartime picture wherein the canal would have to compete for critical materials with "escort vessels, tankers, high octane gas, the rubber program, railway maintenance, shipping, and so on." He conceded that second-hand construction equipment might be available, as Contractor Johnson had said, but he was pessimistic about the outlook for repair parts for such equipment. The only thing that Dr. Elliott did not seem to think would be a serious problem would be that of getting the construction equipment moved to the job. Mr. Johnson had listed the need for priorities on that transportation as one of his "ifs"; but Dr. Elliott pointed out that "the railroads have not come to the point where they are refusing loads." He does not think the movement of the equipment by rail "would require special expediting."

Dr. Elliott did not take any position for or against the canal, which has not been presented to WPB; but he stressed again and again the fact that it would have to be appraised in competition with other war needs. When a committee member suggested that the witness was "not painting a very rosy picture" of the proposed waterway, the WPB official replied that he was "trying to bring home to you the particular types of demands against which this committee ought to assess this particular commodity."

Appearing for the Army and Navy Munitions Board were Brigadier General Weaver of the Army and Captain McDowell of the Navy. After pointing out that the War Department once endorsed the canal, the former went on to give the Department's present view as being in line with Dr. Elliott's testimony. "As we see it," General Weaver went on, "there cannot but be some interference with military programs. . . . It is apparent, as it stands now, that there are other things in the military program which everyone would grant are ahead of this project."

Panama Canal Traffic

Tolls-paying traffic through the Panama Canal has fallen to the levels prevailing during the period 1917 through 1919, the first few years that the canal was open to ocean traffic. This was revealed in testimony on the War Department Civil Functions Appropriation Bill for the fiscal year ending June 30, 1944, which was given recently before a House appropriations subcommittee by Major General Edgerton, governor of the Panama Canal Zone.

"The revenue from tolls for the first six months of this fiscal year ended December 31, 1942, totaling $3,303,517.94," General Edgerton said, "is less by $3,106,992.78, or 48 per cent, than for the first six months of last year, and is now little more than one-fourth of the rate of tolls receipts during the six years prior to the outbreak of war

in Europe. Commercial tolls paying traffic during the fiscal year 1942 declined 45 per cent as compared to fiscal year 1941, but free transits of public vessels . . . increased about 30 per cent in 1942 as compared to 1941. The total transits of all classes of vessels for 1942 are about one-third below 1941 and the trend appears to be steady or slightly increasing at this time."

Axis Believed to Excel in Transport Co-ordination

In an address before the Yorkshire section of the British Institute of Transport recently, reported in the organization's journal for January, E. W. Arkle, assistant goods manager (i. e., assistant freight traffic manager) of the London & North Eastern, discussed some of the effects of the present war on the transportation systems of the belligerents.

Mr. Arkle attributed Germany's railway difficulties mostly to severe winter conditions on the continent, which played havoc with inland water transportation and threw an added burden on the railways which would, even in peacetime, have been a severe strain. Making liberal use of other people's rolling stock and facilities has eased the difficulties somewhat thus far and this course will, no doubt, be ruthlessly continued.

Passenger services in the Axis countries, according to Mr. Arkle, are operated under the same restrictions as in Britain and elsewhere—with reduced timetables, much overcrowding of trains, and the abandonment of all luxury services. Sleeping car services on the continent, however, have been trimmed very little, although their use is confined mostly to those traveling in connection with the war.

The shipment of huge tonnages of coal into Italy has been the major cause of difficulty in the movement of freight on the Axis railways. Mr. Arkle believes that a closer co-ordination between the various forms of transport exists in the Axis countries than in Britain.

The general effect of the present war on transportation, he feels, is not unlike that experienced in 1917, except that fares had already been increased 50 per cent by the end of the third year during the last war. Closer cooperation between the British railways during the present war has been of tremendous value, and he believes that the principal achievement thus far in the present war has been the great progress made in traffic planning and route allocations.

ODT Makes Travel Tough for Kentucky Derby Fans

Measures adopted to discourage travel to and from Louisville, Ky., at the time of this year's Kentucky Derby were announced March 23 by the Office of Defense Transportation after conferences between its representatives, the management of the Churchill Downs track, and traffic and operating officers of the railroads and bus lines serving that point.

As reported in *Railway Age* of February 20, page 408, the ODT's Director Eastman had given his qualified approval to plans of the track management to conduct the race on May 1 under restrictions designed to prevent persons outside the vicinity of Louisville from attending the event, and the present announcement gives effect to these restrictions.

The Baltimore & Ohio, Chesapeake & Ohio, Monon, Illinois Central, Louisville & Nashville, Pennsylvania, New York Central and Southern have agreed to make no reservations prior to April 26 for travel to Louisville between April 26 and May 1, inclusive, or for travel out of Louisville on May 1, 2 or 3. These restrictions do not apply to service men, holders of government transportation requests, or "bona fide war-connected travel."

Bus lines serving Louisville have agreed not to furnish for the May 1 week-end any facilities beyond those available for normal week-end business.

Because the track management already had accepted reservations for boxes from many regular patrons not residents of the Louisville vicinity, Mr. Eastman has sent to each of these persons a letter asking their co-operation in the effort to limit non-essential travel, explaining the measures the rail lines have agreed to take to curb advance reservations, and pointing out that ODT orders prevent the roads from operating special trains or additional cars to accommodate abnormal business.

East's Tank Car Repairs Show Downward Trend

Time lost for repairs in transit on tank cars engaged in the East coast petroleum traffic in December, 1942, was equivalent to about 0.9 per cent of the effective capacity of these cars, the Office of Defense Transportation pointed out in a statement released March 19.

Reporting on a survey of maintenance reports for that month, the ODT revealed that during the first half of the month the number of tank cars in that service set out for repairs en route was 4.91 per cent of the total handled by the railroads, while it decreased to 4.59 per cent in the last half of the month. For 99.7 per cent of these cars the time lost was brief, as only light repairs were required. Only 144 of the cars were withdrawn from service for heavy repairs, which on the average required about eight days.

Figures for recent periods show a decrease in bad order tank cars, the statement indicated. For the two weeks ending December 15, this classification included 2.25 per cent of such cars; for the two weeks ended January 15 it was 2.01 per cent; while for the two weeks ended February 15 it was 1.98 per cent.

Out of about 145,000 tank cars in the country suitable for petroleum shipments, about 70,000 are now engaged in the movement of oil and oil products into District No. 1, the Atlantic coast states, the ODT pointed out. The balance of these cars are distributed as follows: Petroleum movement in other sections, 36,000; handling liquefied petroleum gases, 2,500; shipment of chemicals, including caustic soda, acids, and creosote, 14,000; movement of alcohol and molasses, 2,000; handling vegetable oils, fats, syrup and similar commodities, 6,500; in railroad service 11,000; used by the War Department and other government agencies, 2,600. In the March 13 week, delivery of petroleum products into District No. 1 by tank car averaged 814,017 barrels a day, an increase of 16,925 barrels daily, or about two per cent, over the previous week, Petroleum Administrator Harold L. Ickes announced March 19. In addition, an average of 19,861 barrels of kerosene a day reached New England points in steel drums handled in box cars.

The first of 500 wooden petroleum barges under construction to add to the oil-handling capacity of the Atlantic coastal waterway was launched on March 20, the ODT announced, and all are expected to be in service by October 30. At the same time 21 towboats and 100 tugboats are being built for use in this service. The fleet will add about 100,000 barrels a day to the movement of residual fuel oil to the East coast, it was stated. Construction is under the direction of the Corps of Engineers, U. S. Army. The equipment will be chartered to private operators, after allocation by a committee representing the Petroleum Administrator, the Office of Defense Transportation, and the Defense Plant Corporation, which is financing the project.

Permit for Circus Trains

General Permit ODT 24-6 has been issued by the Office of Defense Transportation with a March 26 effective date to permit railroads to handle circus trains consisting of cars owned or leased by circuses. The permit stipulates that contracts entered for such transportation shall provide that the circus trains are subject to delays to give preference to all other train movements, and that no liability shall rest with the railroads for such delays. Also, the circus is required to furnish the railroads evidence in writing that the proposed itinerary has been approved by ODT.

The permit is a follow-through to a formalization of ODT Director Eastman's statement of policy with respect to circus trains, which was noted in the *Railway Age* of February 13, page 369.

Weiner Wants Civilian Supply On Par With Military

If essential civilian requirements are not identified and given the necessary priorities for fulfillment, a real transportation shortage may paralyze American industry and population, Joseph L. Weiner, director of the Office of Civilian Supply of the War Production Board, informed the Senate committee on banking and currency March 24 in a statement supporting the bill (S. 885) introduced by Senator Maloney, Democrat of Connecticut, to establish a Civilian Supply Administration.

When the Far Eastern rubber supply was cut off and rail traffic movements were sharply accelerated as we entered the war, the country became nationally conscious of the importance of transportation services, the statement pointed out. So far, except for local difficulties, there has been no lack of facilities to move all traffic, essential and non-essential alike, said Mr. Weiner, but "I doubt whether the future will be so kind."

Arguing that protection of the essential civilian economy—which he defined as

something far different from "business as usual"—is as important to all-out war as the production of military supplies, Mr. Weiner described to the committee how the functions of the Army's Supply Forces —among others the provision of transportation adequate to care for the needs of the service—could be performed on behalf of the civilian economy by a central civilian supply organization clothed with adequate authority and responsibilty. Today, he said, Civilian Supply is "one of many dozen" WPB units, without official responsibility for the resources essential to the maintenance of essential civilian supply. This "intolerable situation" could be corrected, he asserted, if civilian needs could be guarded by an independent organization with sufficient power, for example, to "see to it" that the Office of Defense Transportation provides essential transportation, just as the Army's supply forces arrange for necessary military transportation.

Materials and Prices

Following is a digest of orders and notices of interest to railroads issued by the War Production Board and the Office of Price Administration since March 20.

Acetylene and oxygen — WPB-2891, issued March 20, predicted that the present shortage of calcium carbide, used in generating acetylene, will continue for several months as a result of delays in new facilities. The Oxygen and Acetylene Industry Advisory Committee was also informed that there will be a serious shortage of industrial oxygen, which will continue throughout the year, pending completion of new facilities. Concerted efforts are being made to induce all consumers of calcium carbide, acetylene and oxygen to adopt all possible conservation measures. In allocating calcium carbide for April, cross-hauling will be eliminated wherever possible. Several changes in calcium carbide Order M-190 will be published in the near future.

Buildings—WPB-2890, issued March 21, clarifies the situation with respect to deliveries of controlled materials for construction projects and plant facilities, pending the issuance of a formal regulation under the Controlled Materials Plan. All current construction jobs authorized in accordance with WPB orders prior to February 17, 1943, have been assigned to individual Claimant Agencies, including the Office of Defense Transportation, Office of Rubber Director, Facilities Bureau of WPB, Petroleum Administration for War, National Housing Agency and the Office of War Utilities Director. Claimant Agencies have contacted jobs under their jurisdiction and requested applications for controlled materials, CMP-4C being the principal form used by railroads. In the case of construction projects authorized subsequent to February 17, 1943, instructions will be issued to the consumers involved indicating the Claimant Agency to which applications for controlled materials are to be directed and the specific application forms to be used. Applications for authorization to construct will, until further notice, be made in accordance with existing procedures. All of the provisions of CMP Regulation No. 1 are applicable to construction operations with the exceptions that none of the provisions respecting production schedules applies to construction; and the provisions of paragraph (s-1), restricting the placement of authorized controlled material orders to specified quantities, do not apply to construction. Preference ratings assigned to construction projects may be applied or extended only for the purpose of acquiring those items of materials specifically approved in connection with the issuance of the authorization to construct. Numbers identifying allotments for construction may be used along with such preference ratings in the same manner as provided in CMP Regulation No. 3 governing preference ratings assigned to production schedules.

Lighting and fixtures — Information Circular No. 3—issued March 13 to members of the lighting fixture industry advisory committees of WPB; manufacturers and distributors of fluorescent lighting fixtures; secretaries of trade associations in the electric lighting fixture industry; and members of the industry and organizations within the industry—announces items of interest to the lighting fixture industry resulting from meetings of the Lighting Fixture Ballast and Transformer Committee on February 4 and of the Fluorescent Lighting Fixture Industry Advisory Committee meeting on February 12.

Railway work equipment—A circular issued by the Transportation Equipment Division, requesting makers of railway maintenance of way work equipment and track equipment to furnish a Summary Bill of Material on certain items, reads, in part, as follows. "On the attached sheet are shown individual items coming under each of the above two groups. Please review this list carefully and furnish a Summary Bill of Material only for items which are checked with ink. Please disregard the others. This list of items is not exhaustive but indicates the general type of equipment included under each group. If you manufacture items not listed which you consider should be included in one or the other of these groups and Bills of Materials furnished, please call it to our attention and we shall be pleased to consider the matter further with you.

"Each Bill of Material is to include controlled materials with code number, CMP materials and lead and cast iron. Include on each Bill of Material your selling price for each unit or model f.o.b. factory.

"Also please provide, based on past experience, a Summary Bill of Material, as above outlined, for the manufacture of repair and maintenance parts which it will be necessary for you to provide during 1943 for your equipment now in the field. Make this list by quarters and give your total dollar value for each quarter. Do not report materials going into Class B products used in the manufacture of your equipment, but include on each Summary Bill of Materials a list of Class B-Group I products in units and dollar value, as outlined in CMP Class B list, dated December 21, 1942, which are component parts of each item for which you are furnishing a Bill of Materials."

The circular listed adzers; ballasters; ballast cleaners; ballast discers; ballast spreaders; ballast scarfiers; bonding drills; hand cars; velocipedes; motor inspection cars; motor light section cars; motor standard section cars; B & B department cars; motor, logging and small passenger cars; trailer, derrick crane type cars; push or trailer cars; inspection multi-gage motor cars; 6-man heavy duty multi-gage motor cars; trailer or push multi-gage cars; rail cross grinders; rail surface grinders; portable rail laying machines; power rail saws; spike pullers; snow plows or flangers; tie drills; tie saws; electric tie tamping equipment; pneumatic tie tamping equipment; gasoline tie tamping equipment; track drills; power track jacks; track oilers; track shifters; track wrenches; weed destroyers; weed mowers; and weed burner patrols. The list also includes car bumpers; car derails; small fabricated coalers; mail cranes; flange or curve oilers; switch heaters; water columns; and water spouts.

Steel plate—Schedule No. 8 to Limitation Order L-211, issued March 22, prescribes standard specifications for carbon steel plates, reducing the number which may be produced from several hundred to approximately 25. The schedule was developed by WPB's National Emergency Steel Specifications Technical Advisory Committee, which is composed of representatives of producing and consuming interests and representatives of the military services. Commercial specifications were chosen from those having the widest distribution and use. The schedule provides that, effective immediately, no person shall produce or deliver on a government order any carbon steel plate which does not conform to a specification included on List 1 or List 2 of the schedule; while production or delivery for other orders must conform to specifications included in List 1, excepting plates which were produced or fabricated prior to March 22. Specifications have already been put into effect for concrete reinforcing steel (Schedule No. 1); steel wheels and tires (Schedule No. 2); barbed wire and wire fence (Schedule No. 3); structural steel shapes (Schedule No. 4); steel axles and forgings (Schedule No. 5); mechanical steel tubing (Schedule No. 6); and rails and track accessories (Schedule No. 7).

Water, light, gas—Supplemental Utilities Order U-1-d, issued March 10, authorizes advance approval of limited utility connections for construction or remodeling projects permitted under L-41. To qualify for such automatic approval, material for an electric, gas or water connection must cost less than $1500 in case of underground connection or $500 in the case of other construction. In the case of an industrial consumer, not more than 60 lb. of copper may be used in an electrical connection or 250 lb. of iron and steel for gas or water service. Previously such connections were granted upon individual application to WPB.

Prices

Coal—Maximum prices at all sales levels of bituminous coal mined in District No. 11 (Indiana) were increased on an average of 20 cents a ton to cover higher labor and operations costs of the 6-day week agreement in Order OPA-1959, issued March 22.

Storage batteries—Amendment No. 70 to Maximum Price Regulation No. 136 (machines and parts and machinery services), effective March 22, provides manufacturers and wholesalers of automotive batteries and parts with alternative ceilings. The action allows the manufacturer or wholesaler to use the February 1, 1942, price, or he may, if he chooses, add the previously authorized allowance of one cent per lb. of lead content to his October 1, 1941, list price. Previous provisions of the regulation allowed manufacturers to add the one cent per lb. lead allowance to their October 1, 1941, price only if the resulting price does not exceed March, 1942, prices. Most of the battery producers had raised their prices prior to March, 1942, on the basis of increased lead costs and these were allowed to add the one cent per lb. allowance.

Track bolts—Price Interpretations No. 18, a 50 page pamphlet issued February 28, digesting interpretations of specific price schedules and regulations other than the General Maximum Price Regulation, interprets Price Schedule No. 49 (resale of iron and steel products) to include new or used splice bars. However, new track bolts when sold by producers are covered by Regulation No. 147 (bolts, nuts, screws and rivets) and when sold by a person other than the producer are subject to the General Maximum Price Regulation. Splice bars and track bolts are not included in the definition of relaying rail and therefore are not subject to Schedule No. 46 (relaying rail).

Wheels and axles—Price Interpretation No. 19, issued March 15, containing 25 pages of interpretations of specific price schedules and regulations other than the General Maximum Price Regulation, explains that maximum prices for railroad wheels and axles prepared by a dealer or originating from railroads which did not within two weeks after February 9, 1942, file average price information with OPA for such grades of scrap are determined under Section 1304.14 (d). Cast iron wheels must be classified and sold as cast iron scrap other than railroad scrap under the provisions of Section 1304.15. Where the wheels meet the maximum size and weight limitations as defined in Section 1305.15 (c), Item 1, they may be classified and sold as No. 1 Cupola Cast. Where the wheels do not conform to the grade specification of No. 1 Cupola Cast, they may be sold at the maximum price for Item 7, Charging Box Cast. If the railroad steel axles referred to in Section 1304.14 (d) (2) (i) are not sold for rerolling or reforging, they must be sold at the price of No. 1 Heavy Melting Steel as set forth in Section 1304-13 when conforming to the maximum size limitations for such grades. Where the axles do not conform to the maximum size limitations of No. 1 Heavy Melting Steel, they are Unprepared Heavy Melting Steel.

GENERAL NEWS

More and Bigger Canals After War

215 millions of new projects already on books for post-war digging

Water-borne traffic on rivers, canals and connecting channels during the calendar year 1941 totaled 427,223,000 tons as compared with 128,000,000 tons during the calendar year 1918, according to data supplied by Major General Reybold, chief of Army engineers, in the course of recent testimony before a House appropriations subcommittee on the War Department Civil Functions Appropriation Bill for the fiscal year ending June 30, 1944.

The figures were supplied in response to a request from Representative Case, Republican of South Dakota, who had in mind "that Congress has appropriated hundreds of millions of dollars for the development of the inland waterways system," and who had "heard it said that the comparative figures of commerce borne and the contribution that has been to the war effort was a definite justification of what Congress has done in that regard." The breakdown of the totals showed that traffic on the Mississippi river increased from 5,365,000 tons in 1918 to 22,818,000 tons in 1941, while the increase on the Ohio was from 6,662,941 tons to 36,556,854 tons.

Previously General Reybold had discussed the estimate submitted by the Bureau of the Budget for rivers and harbors work in fiscal 1944. As noted in the *Railway Age* of January 16, page 220, the estimate was $35,700,000 for maintenance of existing rivers and harbors works with no estimate for new construction; although the Budget Bureau did approve the application to new work of $3,200,000 available from previous appropriations. While new rivers and harbors work has thus been sharply curtailed, General Reybold assured the subcommittee members that projects on which work was suspended under War Production Board directives "will be completed as soon as possible after the war, or earlier if the present restrictions are lifted before that time."

Moreover, the War Department is "also preparing designs for other authorized projects that will be ready for prompt initiation as part of a post-war public-works program"; and General Reybold expects this to be "an important element of the orderly transition from war to peacetime activities." The estimated amount required to complete all rivers and harbors work authorized by Congress, the General said, is $214,591,340, of which $145,386,375 is the estimated cost for work "not subject to unreasonable delays due to nonfulfillment of local cooperation requirements."

The largest item of new work to be done in fiscal 1944 out of the $3,200,000 available from previous appropriations is a New York Harbor improvement project estimated to cost $1,200,000. Other items are: Inland waterway from the Delaware river to Chesapeake bay, $590,000; Louisiana-Texas Intracoastal Waterway (Sabine river to Corpus Christi section), $710,000; Mississippi river between the Ohio and Missouri, $500,000; Ohio river open channel work, $200,000. In this connection the War Department had sought to expend for new work in fiscal 1944 a total of $14,723,000 from previous appropriations, but the Budget Bureau approved only the $3,200,000, cutting in half the proposed $1,000,000 for work on the Mississippi between the Ohio and Missouri and eliminating other projects entirely.

Other data submitted by General Reybold included a table showing how it is proposed to apply the $35,700,000 which the Budget Bureau recommended for maintenance of existing works. The largest item is $3,011,574 for the operation and care of Ohio river locks and dams. Next in turn came $2,500,000 for maintenance on the Delaware river between Philadelphia, Pa., and the sea; $1,499,338 for open channel work on the Ohio; $1,400,000 for operation and care of the Mississippi, between the Missouri and Minneapolis, Minn., where $890,000 more is to be spent for maintenance; $1,200,000 for maintenance on the Missouri from the mouth to Kansas City, Mo.; and $1,170,000 for maintenance on the Mississippi between the Ohio and Missouri.

Food Traffic Much Heavier on the Railroads

Following a meeting of the Eastern Railroad Presidents Conference on March 18, F. E. Williamson, chairman of the conference and president of the New York Central, made the following statement:

"To keep the American armed forces the best fed men in the world, to feed our civilian population, and to aid our lend-lease allies, the railroads last year transported more than one ton of food for every man, woman and child in the United States."

He went on to say that products of agriculture, consisting mostly of foodstuffs, totaled 115 million tons, an increase of 15 per cent over 1941, and the transportation of animals and their products made up an additional 21 million tons—representing an increase of 25 per cent over the 1941 figure.

Canned goods, too, were moved in increased volume—9.5 million tons were handled, an increase of 25 per cent over 1941. So far this year, Mr. Williamson said, the trend is continuing upwards.

Vogtle Praises O.D.T. and I.C.C.

Contrasts work of mature men with that of boy lawyers in other bureaus

The originators of the shippers' advisory boards "builded better than they knew"—in providing two decades ago a mechanism of co-operation so suited to meeting the present transportation emergency. Thus A. W. Vogtle, formerly president of the National Association of Regional Advisory Boards, analyzed the present shipper-carrier co-operative situation at the recent meeting of the Southeastern Advisory Board in Atlanta.

As proof of this contention, he drew attention to "the contrast of first class transportation performance of World War II with the transportation breakdown through government muddling and incompetency in railroad operation in World War I."

Mr. Vogtle also contrasted the ODT and the Bureau of Service of the I. C. C. with the general run of "war time bureaus," whose characteristic has been "the abrupt application of ill-considered regulations. And the resulting chaos has been shrugged off by the boy lawyers and the reformers so predominant in these bureaus as a necessary hardship of war, even though it be such a trivial question as to slice or not to slice the bread. In short, they feel there can be strength only through misery.

"These bureaus are incompetent in operation because the appointees are inexperienced, impractical and incompetent. In contrast, the O. D. T. and the I. C. C.'s Service Bureau are discharging their responsibilities well because their personnel is composed of sane, experienced and competent men.

"Your Contact Committee has been meeting now with these agencies for some 14 months—at least once a month and sometimes more often. So much has been accomplished in stepping up the efficient use of the transportation plant that no American boy has died for lack of rail transportation within the United States, and even the ordinary civilian producer and shipper have so far had all necessary transportation.

"The bigger things have been done—heavier loading, quicker loading, quicker unloading, etc. And now further gains in transportation capacity can come only through a multitude of small improvements and through new equipment for the transportation agencies. Among these should be mentioned the cleaning of dunnage and refuse from car by receiver so that the car may be immediately placed for the next

loading without delay incident to moves to and from cleaning track.

"Another is to reach that small percentage of shippers and receivers who are not properly impressed with the necessity of prompt release of equipment. This is to be done by increased demurrage rates, which will stimulate more energy in car release. The shortage of flat cars is forcing traffic into gondolas and end-door box cars. There is a close supply of first class box cars. The refrigerator cars are short. The open top cars are a danger point. So we may expect demurrage increases on these other type cars.

"Some of the ideas under current discussion are not clicking, particularly the much discussed rail-truck coordination. Many shippers and receivers are hostile to the idea and the rails and the trucks are suspicious of each other. But O. D. T. still feels there are possibilities. The attempt now, though, will be along less ambitious country-wide lines and through joint rail-truck planning and cooperation if that is attainable. It is thought that a few modest local work-outs may establish a helpful pattern for more general application.

"There is some doubt now as to any tremendous car saving from O. D. T. No. 1, heavy l. c. l. loading. It is true that fewer cars are now loaded in this trade but no corresponding surplus of cars has been created. The explanation appears to be that the heavy loading is obtained by loading on many intermediate break-bulk points with so much delay at these intermediate points that the fewer cars are in service so much more time that the loaded car-days are just about as great as under the former system. This is being studied.

"The only mistakes of any consequence in O. D. T. have been confined to the truck division with release of orders always as a surprise and sometimes as a shock because there has been no prior consultation with users of the service. I think Mr. Eastman has corrected this failure.

"The summer coal storage program, which was so successful last year in transferring production and traffic movement to the off-peak summer period, is a 'must' program this year and will be pressed with all energy by the government, the coal industry and business generally for a uniform 12,000,000 tons per week coal production throughout the year. And there are many other possibilities for traffic transfer from the October-November peak period to the summer months.

"In reaching out for power by the government agencies and bureaus, I sense a conflict or at least a possible duplication as between branches of the War Production Board and the Office of Defense Transportation. We endeavored to clear this possible undesirable development by recommending that Mr. Eastman be made a member of the War Production Board. This has not been done. In fact, I doubt that our recommendation ever came to the personal attention of Mr. Roosevelt. In any event, we have made plain our conviction that transportation matters should clear through O. D. T. and I. C. C."

Pension Act Amendment

Representative Johnson, Republican of Indiana, has introduced H.R. 2253 to amend the Railroad Retirement Act to provide optional retirement annuities for totally and permanently disabled persons who have completed 15 years of service, and to provide for a minimum payment of $50 a month.

WPB Reorganization Effective

The new organization of the War Production Board, resulting from the appointment of Charles E. Wilson as executive vice-chairman and the dismissal of Ferdinand Eberstadt, became effective March 19, the WPB announced on March 24. Four vice-chairmen, each of whom reports to Mr. Wilson, were named in the order formalizing the new set-up, and the general duties of these officers were specified. While announcement of their appointments had already been made in some cases, their responsibilities were more particularly defined in the order.

J. A. Krug, the program vice-chairman, in addition to serving as chairman of the Requirements Committee, the central allocation authority under the Controlled Materials Plan, is directly in charge of several WPB units, including the Stockpiling and Transportation Division. Donald D. Davis, the operations vice-chairman, is put directly in charge of 20 different divisions and units of the WPB, including the Construction and Utilities Bureau, of which the Transportation Equipment Division is a part, and the Salvage Division.

ODT Sets Up Mechanical Office for Western Roads

Establishment of an office in Chicago of the mechanical operations section of the Division of Railway Transport of the Office of Defense Transportation was announced this week by ODT Director Joseph B. Eastman. The purpose of the office is to maintain closer contact with railway mechanical problems in the western region. The Washington, D. C., office will serve the East and South in the same way.

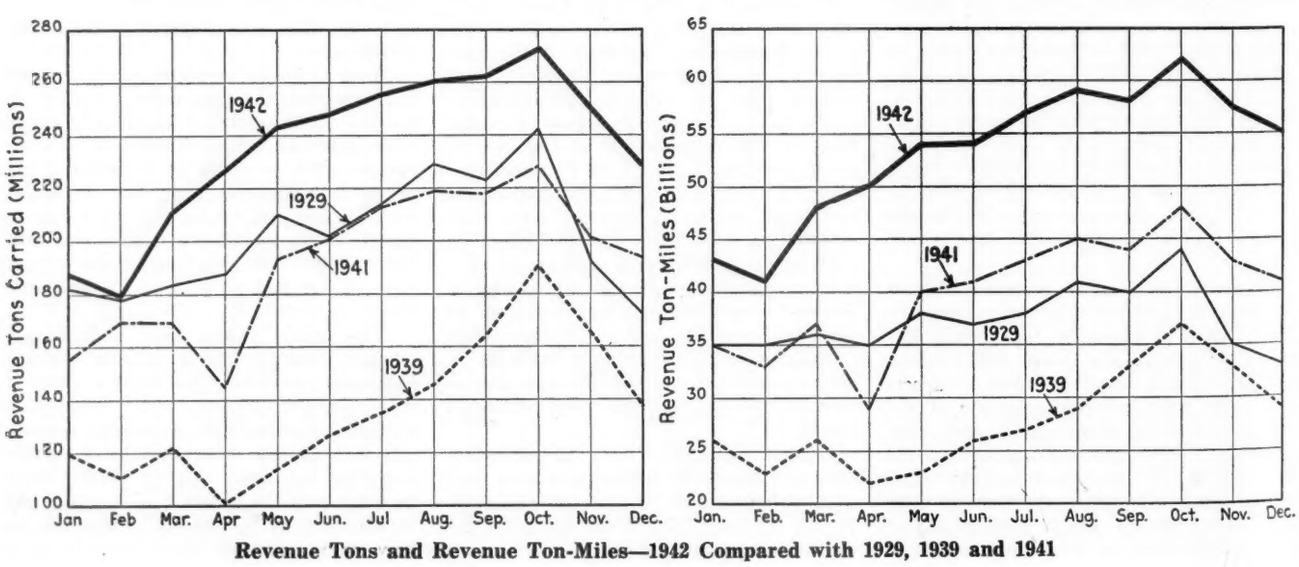
The Chicago office will be in charge of James E. Friend, deputy director, who has been deputy director in the Washington office. Mr. Friend formerly was master mechanic of the Texas & Pacific at Fort Worth, Tex.

Other officers in the new office are Albert V. James, locomotive assistant, and Frank J. Swanson, car assistant. Mr. James, transferred to the ODT from the War Department, was master mechanic of the Union Pacific, and Mr. Swanson, already on the ODT staff, was car department supervisor of the Chicago, Milwaukee, St. Paul & Pacific.

The Washington office of the mechanical operations section will be in charge of Stanley Bliss Riley, deputy director, who was, until his retirement in 1939, general manager of the Pittsburgh & West Virginia.

Freight Car Loading

Loadings of revenue freight for the week ended March 20 totaled 768,134 cars, the Association of American Railroads announced on March 25. This was a decrease of 908 cars or 0.1 per cent under the preceding week, a decrease of 28,520 cars or 3.6 per cent below the corresponding week last year, and a decrease of 1,850



Revenue Tons and Revenue Ton-Miles—1942 Compared with 1929, 1939 and 1941

cars or 0.3 per cent below the comparable 1941 week.

Loading of revenue freight for the week ended March 13 totaled 769,042 cars, and the summary for that week, compiled by the Car Service Division, A.A.R., follows:

Revenue Freight Car Loadings

For the Week Ended Saturday, March 13

District	1943	1942	1941
Eastern	154,051	166,739	171,922
Allegheny	168,044	176,003	172,014
Pocahontas ...	58,383	53,381	54,504
Southern	124,350	130,419	117,612
Northwestern ..	80,888	92,222	84,403
Central Western	114,505	117,156	106,873
Southwestern ..	68,821	63,436	52,279
Total Western Districts	264,214	272,814	243,555
Total All Roads	769,042	799,356	759,607
Commodities			
Grain and grain products	48,599	38,233	32,562
Live stock.....	12,504	10,868	10,189
Coal	178,481	155,616	162,246
Coke	14,821	13,751	14,121
Forest products	42,308	47,486	39,444
Ore	14,821	12,710	13,265
Merchandise l.c.l.	96,619	146,821	159,286
Miscellaneous ..	360,889	373,871	328,494
March 13.....	769,042	799,356	759,607
March 6.....	748,890	770,485	742,617
February 27...	782,855	781,859	756,670
February 20...	752,449	774,420	678,523
February 13...	764,950	782,701	721,176
Cumulative Total, 11 Weeks....	8,104,421	8,551,262	7,823,198

In Canada.—Carloadings for the week ended March 13 totaled 60,944 compared to 63,569 for the previous week and 62,795 for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

Total for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
March 13, 1943.....	60,944	35,824
March 6, 1943.....	63,569	38,095
February 27, 1943....	65,170	40,663
March 14, 1942.....	62,795	33,114
Cumulative Totals for Canada:		
March 13, 1943.....	645,797	385,640
March 14, 1942.....	670,047	346,085
March 15, 1941.....	586,733	311,108

Annual Meeting of Traffic Club of Washington

Norris C. Reed, traffic manager of the Veterans' Administration, was elected president of the Traffic Club of Washington, D. C., at the annual meeting held on March 18. He succeeds J. A. MacDonald, general agent of the Missouri Pacific.

Other officers elected are: First vice-president, C. A. Miller, general agent, Chicago & North Western; second vice-president, Rowland E. Dobbins, administrative traffic officer, Department of Agriculture; secretary-treasurer, Charles E. Milford, assistant division chief, Finance Office, U. S. Army, Transportation Division.

Loading War Equipment

A complete revision of the 1941 Special Supplement to the rules governing the loading of commodities on open-top cars has been prepared by the A.A.R. Committee on Loading Rules, in co-operation with the war department, to govern the loading of mechanized and motorized equipment transported by the ground armed forces, also, major caliber guns for the United States army and navy, on open-top equipment. According to a circular letter, recently issued by Secretary A. C. Browning, it will not be necessary to make distribution of this supplement to shippers generally but only to shippers of the types of equipment covered by the specifications and figures contained therein, such as tanks, half tracks, four- and six-wheel trucks, trailers and passenger cars, six-wheel trucks (single or dual wheel) 37-, 75-, 90- and 105-mm. mounted guns or howitzers, 155-mm. guns, M-1, 8-in. howitzer carriages, mobile anti-aircraft guns, motorcycles, pontoons on carriages or trailers and major caliber guns.

House Gets St. Lawrence Bills

Three identical bills to provide for an immediate undertaking by the United States of St. Lawrence seaway and power project works allocated to it by the joint agreement with Canada were introduced this week in the House of Representatives. As a preliminary, the bills would approve the agreement and empower the President to fulfill the undertakings therein.

They are H.R. 2278, introduced by Representative Culkin, Republican of New York; H.R. 2280, introduced by Representative Pittenger, Republican of Michigan; and H.R. 2284, introduced by Representative Wasielewski, Democrat of Wisconsin.

Pullman's New York Zone Abounds in New Ideas

Employees in the New York zone of the Pullman Company in 1942 received $2,415 in awards made under the company's employee suggestion system, according to E. S. Taylor, director of the system. This zone is comprised of New York, Boston, Buffalo, Cleveland, Detroit, Hoboken, Montreal, Toronto and other railroad cities in between. 2,020 ideas were submitted, out of which 190 were adopted by Pullman and put into effect during the year.

The 25,000 Pullman employees throughout the country submitted more than 24,000 suggestions during the year, with total awards of $44,845. The New York zone ranked highest in the number of suggestions adopted, with 62.89 ideas adopted per 1,000 employees.

Chicago Traffic Club Elects New Officers for 1943

At the annual meeting of the Traffic Club of Chicago, on March 25, the following officers were elected for the ensuing year: President, E. B. Finegan, chief traffic officer of the Chicago, Milwaukee, St. Paul & Pacific; first vice-president, S. L. Felton, general traffic manager of the Acme Steel Company; second vice-president, J. H. Burke, vice-president and general manager of the Chicago Tunnel Transport Company, the Chicago Tunnel Company and the Chicago Warehouse and Terminal Company; third vice-president, R. V. Craig, general traffic manager of Allied Mills, Inc.; secretary, Geo. H. Weiss, shipping editor of the Chicago Journal of Commerce; and treasurer, R. J. Wallace, traffic manager of the Jaques Manufacturing Company.

At the luncheon on March 18, Major-General Charles P. Gross addressed the club and emphasized the importance of perfect shipping to the war effort. General Gross declared that "if we do a better job in shipments for overseas destinations, we will have perfect shipping at home," and asked that merchandise be packed to withstand the pressure of being stacked high in warehouses and exposure to the weather. He also emphasized the importance of following the army's packing instructions and marking the shipments properly. General Gross added, "if packing supervisors could see the amount of coopering and repacking necessary at ports they would be more inclined to think of goods as intended for General MacArthur or General Eisenhower than as just another domestic shipment."

Mo.-Kan. Board Considers Grain Movement

There will be no wheat rush this year, in the pre-1940 sense of the word, but the loadings immediately after the harvest will be considerably greater than in 1942. The grain movement, and particularly the wheat movement, was, as usual, the principal subject considered at the 21st annual meeting of the Trans-Missouri-Kansas Shippers Board, which was held at the Hotel Jefferson, St. Louis, Mo., on March 17, with General Chairman H. J. Goudelock presiding.

R. E. Clark, manager, Closed Car section, Car Service division, A. A. R., advised that various government agencies will ship 440,000,000 bushels of wheat in advance of this season's harvest and, in addition, 20 million bushels of soya beans will move before September 1. The need for Class A box cars in the T-M-K territory is therefore obvious and the prompt handling of such cars by shippers is imperative. Mr. Clark said that, at a special meeting of the service department of the Interstate Commerce Commission to consider this matter, the service inspectors were instructed to set up sub-committees throughout the territory to speed up the handling of Class A box cars, to avoid circuitous routing of such cars, etc. Mr. Clark advised further that there is a heavy off-season movement of wheat under way at present. The loadings are running eight per cent over the midsummer loadings of last year, which is completely unprecedented.

This unseasonal movement is explained by the fact that the consumption of wheat is increasing, particularly for use in the manufacture of commercial alcohol. The increase over last summer's movement is because the usual wheat rush did not appear in 1942, since there was no place to move the wheat after it was harvested, all storage facilities having been full or nearly full. While there is still a lot of grain in the elevators in T-M-K territory, far more than there ever was in any year before the "ever-normal granary" plan was made effective, the wheat storage facilities will have much more empty space available at harvest time than they had last year.

It was brought out at the meeting that there is a greater scattering of home ownership cars of the wheat-handling roads than at any time since 1917-1918, and that most of the wheat-loading roads do not have on their lines at present the equivalent

in Class A box cars of their ownership of this type of equipment. While the present situation does not yet appear to call for mandatory orders covering the return of western-owned box cars from the East and Southeast, the wheat-loading roads have asked the Car Service division and the Office of Defense Transportation to take the necessary steps to insure that the wheat-loading roads are supplied with at least the equivalent of their ownership of Class A box cars before the wheat harvest begins.

For the second quarter of 1943, the board predicted a decrease of 3.97 per cent in carloadings, from last year's figure of 381,296 to an estimated 366,136 this year. This was predicated on a drop in the loadings of canned goods, now rationed, and of building materials, since the military establishments in the territory have passed beyond the construction stage. The vigilance committees reported that they were experiencing difficulty in continuing their good work, because the shortage of manpower is beginning to make itself felt in delaying the loading and unloading of cars.

At the joint luncheon meeting with the St. Louis Traffic Club, Arthur H. Gass, manager, Military Transportation Section, A. A. R., told a large audience of the railways' accomplishments in handling military passenger and freight traffic.

Great Lakes Advisory Board Meeting March 24

The railroads will probably be called upon to move 25-million more tons nf coal and three million more tons of iron ore this year than they did in record-breaking 1942, Caleb R. Megee, manager of the Car Service Division of the Association of American Railroads, Washington, D. C., told the Great Lakes Regional Advisory Board at the Hotel Statler, Buffalo, N. Y., on March 24. The meeting was also addressed by Donald D. Conn of Chicago, executive vice-president of the Transportation Association of America, who declared the specific war aims of the United States should be made known to the American people.

At the meeting of the board, officers for the ensuing year were elected as follows: President, Frank J. Armstrong, traffic manager of the United States Radiator Corporation, Detroit, Mich.; vice-president, L. H. Baughman, traffic manager of the Toledo Scale Company, Toledo, Ohio; chairman of the executive committee, C. T. Stripp, traffic manager of the National Malleablt & Steel Castings Co., Cleveland, Ohio; and secretary, B. C. Weaver, Detroit.

New Device To Meet East's Oil Needs Under Test

A new type of railroad petroleum carrier in the form of a box car fitted with steel tanks is now undergoing tests, the Office of Defense Transportation announced March 12. The experimental car, constructed at the Mt. Clare shops of the Baltimore & Ohio, holds four steel tanks, made of 1/16 in. sheet steel, riveted and welded and fitted into wooden boxes, all suitably anchored and secured to each other. The floor space of the car is fully covered by these tanks, but ample room is allowed at the top for loading and unloading equipment.

Using an all-steel automobile car, equipped with 10-foot doors, the tanks and wooden containers could be constructed separately and loaded into the car when manufactured. The total capacity of the car is 12,200 gallons, and the ODT points out that 1,000 such cars could be expected to add more than 15,000 barrels a day to the East's petroleum products supply, if operated at the present rate of effectiveness of tank cars serving this territory.

Club Meetings

At its twenty-sixth annual meeting held on March 18, the Pacific Railway Club installed newly elected officers for the coming year as follows: President, B. M. Brown, general superintendent of motive power, Southern Pacific; vice-presidents: H. S. Wall, mechanical superintendent, Santa Fe; C. A. Veale, vice-president and general manager, Northwestern Pacific, and W. T. Richards, chief engineer, Sacramento Northern; Treasurer, H. R. Fegley, assistant to the general manager, Western Pacific. William S. Wollner continues his duties as executive secretary. G. H. Shafer, general traffic manager of the Weyheuser Lumber Company, and president of the National Association of Shippers Advisory Boards, was the guest of honor and speaker.

The New England Railroad Club will hold its next meeting on April 13 at the Hotel Touraine, Boston, Mass. H. F. McCarthy, director, Division of Traffic Movement, ODT, will address the meeting on the subject of "War Traffic and Its Effect on the U. S. Railroads." The annual banquet and entertainment of this club, usually held on the second Tuesday in May each year, has been postponed because of war conditions.

The Northwest Carmen's Association will meet at 8 p. m. on April 5 at the Midway Club, St. Paul, Minn. J. D. Rezner,

Operating Revenues and Operating Expenses of Class I Steam Railways

Compiled from 132 monthly reports of revenues and expenses representing 136 Class I steam railways
(*Switching and Terminal Companies Not Included*)
FOR THE MONTH OF JANUARY, 1943

Item	United States		Eastern District		Southern District		Western District	
	1943	1942	1943	1942	1943	1942	1943	1942
Miles of road operated at close of month	229,693	231,644	56,559	56,937	43,494	43,908	129,640	130,799
Revenues:								
Freight	$514,316,307	$392,567,637	$201,070,932	$163,934,909	$106,930,807	$78,357,395	$206,314,568	$150,275,333
Passenger	111,725,159	55,697,237	46,065,263	27,475,069	23,171,431	10,055,763	42,488,465	18,166,405
Mail	9,662,285	8,906,126	3,396,334	3,218,850	1,740,943	1,581,415	4,525,008	4,105,861
Express	8,956,314	4,691,189	3,273,229	1,500,947	1,553,873	813,569	4,129,212	2,376,673
All other operating revenues	26,674,086	18,825,926	12,032,848	9,151,501	3,545,023	2,553,273	11,096,215	7,121,152
Railway operating revenues	671,334,151	480,688,115	265,838,606	205,281,276	136,942,077	93,361,415	268,553,468	182,045,424
Expenses:								
Maintenance of way and structures	73,038,417	49,472,894	29,278,121	20,470,639	13,936,714	9,778,500	29,823,582	19,223,755
Maintenance of equipment	107,733,323	94,439,819	46,832,227	43,796,641	20,416,065	17,770,441	40,485,031	32,872,737
Traffic	10,185,387	9,711,957	3,743,821	3,444,345	1,905,112	2,023,645	4,536,454	4,243,967
Transportation—Rail line	210,657,167	176,985,410	95,496,206	80,802,701	36,080,411	30,105,374	79,080,550	66,077,335
Transportation—Water line	.....	.....	.....	.....	.....	.....	.....	.....
Miscellaneous operations	8,259,845	5,211,514	3,008,649	2,209,402	1,374,601	862,702	3,876,595	2,139,410
General	14,327,152	12,917,342	5,917,908	5,111,281	2,733,258	2,540,986	5,675,986	5,265,075
Railway operating expenses	424,201,291	348,738,936	184,276,932	155,835,009	76,446,161	63,081,648	163,478,198	129,822,279
Net revenue from railway operations	247,132,860	131,949,179	81,561,674	49,446,267	60,495,916	30,279,767	105,075,270	52,223,145
Railway tax accruals	127,010,454	53,316,106	40,889,838	22,665,821	34,851,193	13,496,247	51,269,423	17,154,038
Railway operating income	120,122,406	78,633,073	40,671,836	26,780,446	25,644,723	16,783,520	53,805,847	35,069,107
Equipment rents—Dr. balance	11,382,029	8,652,773	4,403,508	4,387,701	934,816	*d*125,127	6,043,705	4,390,199
Joint facility rent—Dr. balance	3,436,057	3,129,535	1,798,395	1,584,866	409,833	338,481	1,227,829	1,206,188
Net railway operating income	105,304,320	66,850,765	34,469,933	20,807,879	24,300,074	16,570,166	46,534,313	29,472,720
Ratio of expenses to revenues (per cent)	63.2	72.5	69.3	75.9	55.8	67.6	60.9	71.3
Depreciation included in operating expenses	26,417,674	17,752,690	11,197,575	8,259,405	5,025,147	3,591,367	10,194,952	5,901,918
Deferred maintenance — Way and structures	58,805	.....	.....	.....	.....	.....	58,805	.....
Amortization of Defense projects	9,381,148	3,861,700	3,508,494	1,336,386	2,495,657	872,590	3,376,997	1,652,724
Deferred maintenance—Equipment	*d*34,200	.....	.....	.....	*d*4,810	.....	*d*29,390	.....
Major repairs—Equipment	.....	.....	.....	.....	.....	.....	.....	.....
Pay-roll taxes	15,857,681	13,323,808	6,825,617	5,858,300	2,824,514	2,348,677	6,207,550	5,116,831
Federal income taxes*	87,943,312	19,690,796	24,235,067	7,976,701	26,921,135	7,026,452	36,787,110	4,687,643
All other taxes	23,209,461	20,301,502	9,829,154	8,830,820	5,105,544	4,121,118	8,274,763	7,349,564

d Decrease, deficit, or other reverse items.
* Includes income tax, surtax, and excess-profits tax.
Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

News Department continued on next left-hand page

With modern grinding equipment Lima gives a mirror finish to wearing surfaces. Here is a solid type driving box being prepared for long, trouble-free service.

LIMA-BUILT LOCOMOTIVES GET A PLUS VALUE

The continuous hauling of heavier freight loads at higher speeds, a vital necessity today, calls for long-lived locomotives . . . . locomotives that have the "plus" value of low-maintenance built into them.

At Lima special construction methods, precision jigs and fixtures and a craftsmanship developed through three quarters of a century of experience, assure a locomotive quality that makes itself apparent in greater mileage between shoppings.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED **INCORPORATED, LIMA, OHIO**

superintendent car department, C. B. & Q., will present a paper entitled "Improvements in Freight Car Construction—World War II Compared with World War I" and G. H. Wells assistant to the superintendent car department of the Northern Pacific, will speak on the "Need for Improvement in Car Repair Facilities and Methods to Extent Necessary to Compensate for Present Day Shortage of Material and Labor."

Equipment on Order

Class I railroads on March 1 had 19,329 new freight cars on order, the construction of which had been authorized by the War Production Board, according to the Association of American Railroads. On the same date last year, they had 70,602 on order. This year's March 1 total included 8,953 hopper, 8,428 gondolas, 1,745 flat, 60 plain box cars, and 143 miscellaneous freight cars.

The Class I roads also had 499 new locomotives on order on March 1, compared with 651 on the same day in 1942. The former included 352 steam and 147 electric and Diesel-electric contrasted with 300 steam and 351 electric and Diesel-electric one year before.

Class I roads put 2,996 new freight cars in service in January and February compared with 17,405 in the same months last year. Those installed in the first two months of 1943 included 1,109 hopper, 1,001 gondola, 700 flat, 135 automobile box, 24 plain box and 27 miscellaneous freight cars. They also put 99 new locomotives in service in the first two months this year, of which 83 were steam and 16 were electric and Diesel-electric. New locomotives installed in the same period last year totaled 115, of which 46 were steam and 69 were electric and Diesel-electric.

Milwaukee Awards Honors for Fire Prevention and Safety

On March 23, H. A. Scandrett, trustee of the Chicago, Milwaukee, St. Paul & Pacific, and a group of the road's officers conferred honors on the employees of the Iowa and Dakota division at Mason City, Iowa, and the Iowa and Southern Minnesota division at Austin, Minn., the former for having the best fire prevention record and the latter, the best employee safety record, last year of any of the divisions on the system. An engraved trophy cup was presented to W. F. Ingraham, superintendent of the Iowa and Dakota division, on which division only one fire, with minor loss, occurred last year from causes considered within the control of the employees. R. C. Dodds, superintendent at Austin, received the Safety award on behalf of the employees of his division.

L. & N. History.—The February issue of the Louisville & Nashville magazine announces that on or about March 1 it will publish a 210-page history of the Louisville & Nashville. According to the announcement the history was originally published serially in 43 issues of the L. & N. magazine. Much new material has since been added, and the history will contain over 200 drawings, photographs, maps, etc.

Supply Trade

U. S. Steel's Annual Report Portrays War Effort

The United States Steel Corporation's annual report for 1942, reporting attainment of a steel ingot tonnage production 28 per cent greater than in the peak year of World War I, was released on March 25 as "a production story—and a financial story—of a great war effort." Production by U. S. Steel in 1942 of more than 30,000,000 net tons of ingots as well as the manufacture of a steady flow of products entering into thousands of items used in prosecuting the war are described by Irving S. Olds, chairman of the board of directors. In filling the raw material requirements for maintenance of record-breaking steel production, new highs were achieved in movement of raw materials, particularly iron ore, coking coal and limestone. An average of 200 50-ton carloads of these basic materials was transported every hour, 24 hours a day, during 1942, to supply the requirements of northern blast furnaces alone.

More elaborately illustrated than previous reports of the corporation, the 1942 booklet contains 18 photographs depicting intensified production activities within the mines, plants and shipyards of corporation subsidiaries. A feature of the report is a list of U. S. Steel's war products. The achievements of a number of the subsidiary companies in producing a steady flow of products to the Army, Navy and Maritime Commission and other government agencies are mentioned. A condensation of the corporation's financial record for 1942 is given in the table.

During 1942, U. S. Steel subsidiaries expended a total of $117,546,022 for additions to and betterment of property.

	1942	1941
Products and services sold	$1,865,951,692	$1,622,355,922
Wages, salaries, social security taxes and pensions	782,661,701	628,275,135
Taxes—Federal, state and local	203,755,157	168,645,848
Purchased products and services	648,401,343	579,640,279
Depletion, depreciation, amortization, etc.	128,161,530	98,590,187
Additional war costs (est.)	25,000,000	25,000,000
Interest on indebtedness	6,153,392	6,033,398
Net Income	$71,818,569	$116,171,075
Preferred stock dividends	25,219,677	25,219,677
Common stock dividends	34,813,008	34,813,008

The **Edward O'Malley Valve Company,** Chicago, has established a sales office in the Railway Exchange building, 80 East Jackson boulevard, Chicago.

Thomas T. Bakke, formerly with the **Westinghouse Electric & Manufacturing Co.'s** engineering and service department in Milwaukee, Wis., has been appointed manager of the Milwaukee branch of the company's manufacturing and repair division.

Charles H. Morse, Jr., Charles H. Morse, III, and **Robert H. Morse, Jr.,** have been elected directors of **Fairbanks, Morse & Co.,** Chicago. In addition, Robert H. Morse, Jr., assistant sales manager, has been promoted to general sales manager, with headquarters as before at Chicago.

E. J. Doucet, who has been associated with the **Detroit Lubricator Company** for the past 26 years, has been appointed general sales manager. Until two years ago, Mr. Doucet was in charge of oil burner equipment sales for the western territory, with headquarters at the company's Chicago office. He was subsequently transferred to the main office at Detroit, Mich., as sales manager in the oil burner equipment division, and then appointed sales assistant to the president, which position he held at the time of his new appointment as general sales manager.

OBITUARY

Richard DeWolfe Brixey, president and treasurer of the Kerite Insulated Wire & Cable Co., Inc., New York, whose death on March 14 was reported in the *Railway Age* of March 20, spent his entire career with the Kerite company. He was born in Seymour, Conn., in 1880. Following his graduation from the Sheffield Scientific School at Yale University in 1902, he immediately began work in the Seymour plant of the company, which was owned by his father, W. R. Brixey. He worked his way through all the processes of manufacturing and was particularly interested in the later developments of Kerite for railroad signal service, a pioneer operation of the Seymour plant. He came to the New York office of the company as general manager in 1910 and reorganized the business in 1912 under its present corporate name, the Kerite Insulated Wire & Cable Co., Inc., of which he became president and treasurer.

Richard DeWolfe Brixey

Mr. Brixey was a member of the signal section and the telephone and telegraph

News Department continued on next left-hand page

The unprecedented increase in tonnages of war materials, and the vital necessity of "keeping 'em rolling" . . . on time . . . have materially increased freight train speeds.

This has caused correspondingly greater stresses on engine-tender connections, where safety is of vital importance.

On thousands of locomotives throughout the country, the Franklin Radial Buffer Type E-2 has provided an ideal, non-binding connection between engine and tender. Its smooth, powerful action deadens vibration and provides increased resistance to compression resulting in improved riding quality and safety of operation.

FRANKLIN RAILWAY SUPPLY COMPANY NEW YORK CHICAGO

In Canada: FRANKLIN RAILWAY SUPPLY COMPANY, LIMITED, MONTREAL

section of the Association of American Railroads; a member of the Association of Railway Electrical Engineers; the Railway Business Association; the American Institute of Electrical Engineers; the American Society for Testing Materials; the rubber division of the American Chemical Society; the National Electrical Manufacturers Association; and the Railroad-Machinery Club. He was also a member of the Pilgrims society, the Yale Club and the National Academy of Design, and a life member of the Metropolitan Museum of Art.

Equipment and Supplies

LOCOMOTIVES

THE PERE MARQUETTE has asked for bids on 12 Berkshire type (2-8-4) freight locomotives.

BALTIMORE & OHIO.—The 20 Mallet locomotives recently ordered by the Baltimore & Ohio from the Baldwin Locomotive Works, as reported in the *Railway Age* of March 6, will be of 115,000 lb. tractive power, the same as other B. & O. Mallets, but with greater sustained horsepower, obtained through the use of a larger boiler and firebox. The wheel arrangement of the new locomotives will be 2-8-8-4 rather than 2-8-8-0 as in the preceding type. The new Mallets will have driving wheels of 64-in. diameter to give greater speed than has been possible with the 58 in. drivers of the older engines and greater mileage between stops for servicing is provided by large tenders with capacities of 25 tons of coal and 22,000 gallons of water. The tenders will be welded and the equipment will include feed water heaters, superheaters, syphons, low water alarms and mechanical lubrication.

Although the new locomotives will be capable of operation over more than 1,000 of the B. & O.'s total of 6,000 miles of line, they will be used principally for hauling heavy coal trains in the Alleghenies between Fairmont, W. Va., and Grafton, and Cumberland, Md. Deliveries are expected during November and December.

SIGNALING

THE ST. LOUIS-SAN FRANCISCO has placed an order with the Union Switch & Signal Company covering materials for a centralized traffic control system to be installed on 47 miles of single-track between Dillon, Mo., and Swedeborg. Two style "C" control machines will be located at Newburg, Mo., one of which will control seven locations east from Newburg, with the second machine controlling 17 locations in the territory west of Newburg. The order includes searchlight signal units, electric locks to be applied at 15 hand-throw main line switches and low-voltage electric machines to be applied at the power switch layouts, as well as relays, rectifiers and other apparatus. The field installation work will be done by the railroad.

Construction

Missouri Pacific Improvement Plans for 1943

This road plans to complete a number of improvement projects throughout the system during 1943, including the following: Laying of 231.7 miles of new rail on the Western and Southern districts, and 74.5 miles of rail on the Texas lines. All but 48 miles of the new rail will be of 112-lb. weight. Complete the Arkansas division's centralized traffic control installations. Raise track at five locations on the Eastern division to prevent flood damage. Revise and improve several yards, including the Kansas City East Bottoms yard, and the yard at Alexandria, La., where 25,833 ft. of additional track is to be constructed. Improvement of bridges at Riverton, La.; Wilmar, Ark.; Fenton, La.; Liberal, Mo.; Walls Ferry, Ark.; Madeline, Kan.; Sterling, and Dexter. Replacement of an open deck pile trestle, 698 ft. in length by a creosoted timber ballast deck pile trestle, 702 ft. in length, at Brazoria, Tex. Installation of a 250-ton locomotive hoist at the Hoisington (Kan.) back shop. Water station and appurtenances improvements at several points. Installation of an engine truck and tank wheel drop pit, with 30-ton hydraulic drop pit jacks at San Antonio, Tex.

DENVER & RIO GRANDE WESTERN.—This road has been granted permission by the War Production Board to secure materials for installation of a centralized traffic control system at an approximate cost of $1,000,000. This work is to include the installation of 50 power-operated switches between Agate, Utah, and Helper, and a new control tower at Green River. This proposed construction was reported in the *Railway Age* of February 13.

NORTHERN PACIFIC.—This road has awarded a contract to the Ross & White Company, Chicago, for the installation of a Red Devil locomotive coaler at Lakeyard, Ore.

PENNSYLVANIA.—This road has awarded a contract to the Ross & White Company, Chicago, for the installation of a Red Devil locomotive coaler at Greenville, Ill.

SPOKANE INTERNATIONAL.—This road has awarded a contract to the Ross & White Company, Chicago, for the installation of a Red Devil locomotive coaler at Spokane, Wash.

WAR DEPARTMENT.—The U. S. Engineer Office, Cincinnati, Ohio, has awarded a contract, amounting to less than $50,000, to the Jones Contracting Company, Detroit, Mich., for the construction of roads, parking areas and railroad extensions in Ohio. The U. S. Engineer office, Jacksonville, Fla., has awarded a contract, amounting to more than $100,000 and less than $500,000, to the W. T. Price Dredging Corporation, Miami, Fla., for the construction of track, ballasting, placing turnouts, and clearing and grubbing in Florida.

Abandonments

CHESAPEAKE & OHIO.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon a 1.7-mile segment of line in the vicinity of Price Hill, W. Va.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon its line from Merrill, Wis., to a point near New Wood, 14.89 miles.

This road has been authorized by Division 4 of the Interstate Commerce Commission to abandon a 4.18-mile segment of line extending south from a point 1.16 miles from Madrid, Iowa, upon completion of a new alternate line, construction of which was authorized at the same time.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—Division 4 of the Interstate Commerce Commission has authorized this road to abandon a branch from Goshen Junction, Wash., to Kulshan, 12 miles. Referring to protests from lumber operators and Office of Defense Transportation representatives in that territory, who asked that abandonment be deferred because of their doubt that truck operations can be continued under wartime conditions, the division reported: "We do not believe it fair to the applicants to force them to continue operation of an unprofitable line to insure the future transportation of timber from the territory when there is no suggestion that the shippers are willing to begin now the use of the branch in order to permit its operation without loss, even though they thereby would conserve their present truck equipment."

CHICAGO & NORTH WESTERN.—In a proposed report in Finance Docket 13991 Examiner J. S. Prichard has recommended that the Interstate Commerce Commission deny this road's application for authority to abandon a branch line from a point near New Ulm, Minn., to Kasota, 30.87 miles, without prejudice to a renewal of the application if operations during 1943 continue to result in a loss.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—This company has applied to the Interstate Commerce Commission for authority to abandon a 10.05-mile segment of main line between Camden, Tenn., and Denver, including a bridge across the Tennessee River, to make way for a reservoir project of the Tennessee Valley Authority, in lieu of which it is to acquire and operate a new 10.73-mile line between these points to be constructed by the TVA.

SEABOARD AIR LINE.—Division 4 of the Interstate Commerce Commission has authorized this road and the Tampa & Gulf Coast, lessor, to abandon operation of and to abandon, respectively, (1) a portion of a branch from Lake Villa, Fla. to Tarpon Springs, 3.1 miles, and (2) a portion of a branch from Elfers, Fla., to New Port Richey, 2.3 miles.

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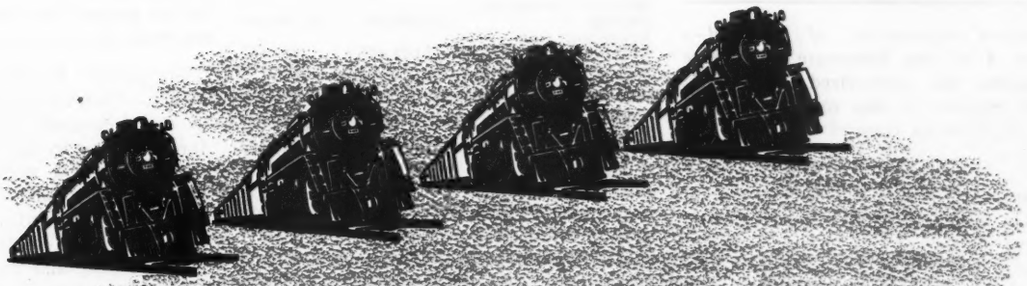
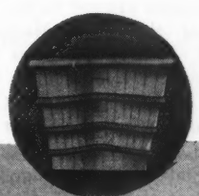


3343 SECURITY CIRCULATORS

HAVE BEEN INSTALLED ON OR ORDERED FOR 687 LOCOMOTIVES IN THE UNITED STATES!

- **for better Arch Brick support**
- **for Improved Circulation**
- **for Reduced Honeycombing**
- **for Reduced Flue Plugging**
- **for Reduced Cinder Cutting**
- **for Increased Availability**



AMERICAN ARCH COMPANY
INCORPORATED • 60 East 42nd Street, New York, N. Y.
SECURITY CIRCULATOR DIVISION

Financial

ALTON.—*Compensation of Counsel.*—Division 4 of the Interstate Commerce Commission has authorized Henry A. Gardner, trustee of this road, to employ Owen A. West as counsel at $12,000 per year.

ALTON.—*Undertakes Independent Operation.*—On March 10, H. B. Voorhees, chief executive officer of the Alton, reported that the company was operating as a fully independent railroad. Prior to the institution of bankruptcy proceedings and the appointment of a trustee, the railroad was controlled by the Baltimore & Ohio (See *Railway Age* of December 5, 1942, page 946).)

CENTRAL OF NEW JERSEY.—*Interest Payment Hearing Postponed.* — Because of pending litigation over the railroad's tax liability, all interested parties have agreed to a 90-day postponement of the hearing scheduled for March 22 in the United States district court at Newark, N. J., at which the Central of New Jersey was to have shown cause why it should not pay one year's interest to holders of its 4 and 5 per cent general mortgage bonds. The bondholders' protective committee had contended that the road made a substantial profit in the last two years, but that bondholders had received no interest since 1939.

ERIE.—*Collateral Trust Notes.*—Under competitive bidding, this company has awarded an issue of $10,000,000 one-to-ten-year 3⅛ per cent collateral trust notes to Halsey, Stuart & Co. and Otis & Co at a price of 100.145. Purchasers have offered the issue for public sale at prices to yield from 1 to 3.15 per cent, varying with the maturity date of the proceeds, $2,960,000 will be used by the road to retire a like amount of maturing first mortgage bonds of the N. Y. L. E. & W. Docks & Improvement Co. and the balance to replenish working capital. This issue is, in part, a substitution for the Erie's proposed financing—disapproved by the I. C. C.—whereunder it sold $14,000,000 of 15-year bonds to Morgan, Stanley & Co. without competitive bidding.

ERIE.—*Annual Report.*—The 1942 yearly report of this company shows a net income, after interest and other charges, of $14,902,736, as compared with a net income of $7,868,872 in 1941. Selected items from the income statement follow:

	1942	Increase or Decrease Compared with 1941
Average Mileage Operated	2,242,348	–9,010
RAILWAY OPERATING REVENUES	$133,353,572	+$26,508,151
Maintenance of way and structures	12,514,817	+3,765,917
Maintenance of equipment	21,677,317	+2,745,708
Transportation	44,064,320	+5,323,797
TOTAL OPERATING EXPENSES	84,642,469	+12,493,361
Operating ratio	63.47	–12.08
NET REVENUE FROM OPERATIONS	48,711,103	+14,014,790
Railway tax accruals	19,505,471	+10,330,247
RAILWAY OPERATING INCOME	29,205,631	+3,684,543
Equipment rents —Net Dr.	5,078,405	+464,687
Joint facility rents —Net Cr.	245,605	+221,393
NET RAILWAY OPERATING INCOME	24,372,832	+3,441,248
Total other income	1,000,071	–155,312
TOTAL INCOME	25,372,902	+3,285,937
Rent for leased roads and equipment	619,062	–757,037
Interest on funded debt —fixed interest	5,897,266	–6,156,624
TOTAL FIXED CHARGES	6,784,311	–6,997,894
NET INCOME	14,902,736	+7,033,865
Disposition of net income:		
Income applied to sinking and other reserve funds— Sinking Funds	563,212	+548,072
Balance of income transferred to Profit and Loss	$14,339,524	+$6,485,793

ILLINOIS CENTRAL.—*No Dividend on 1942 Earnings.*—J. L. Beven, president of the Illinois Central has told stockholders that the railroad must use its war profits to retire indebtedness and improve its properties and that no dividends on 1942 earnings can be expected. The last dividends on the common and (non-cumulative) preferred shares was paid in 1931. Mr. Beven said the road's major expenditures from 1942 earnings were as follows: $10,000,000 for part repayment of an RFC loan; $6,700,000 for additions and improvements to property; and $4,600,000 for purchases of the railroad's bonds having a par value of about $10,000,000, with the remaining $3,700,000 of profits being added to working capital.

NELSON & ALBEMARLE.—*Bonds.*—At the applicant's request, Division 4 of the Interstate Commerce Commission has dismissed this road's application for authority to issue $100,000 of first mortgage bonds.

NEW YORK, CHICAGO & ST. LOUIS.—*New Directors.*—Several new members have been elected to the board of directors of the New York, Chicago & St. Louis, including Hugh B. Baker, president of the Blue Ridge Corporation; W. G. Rabe, vice-president of the Manufacturers Trust Company; Samuel L. Fuller, of Merrill, Lynch, Pierce, Fenner & Beane; and James McCahey, president of the Dunn Coal Company, Chicago.

PERE MARQUETTE.—*New Directors.*—New members elected to the board of directors of the Pere Marquette include James D. Miller, of James D. Miller & Co.; John E. Dwyer, trustee of the Inland Power & Light Corporation, Chicago; John J. O'Laughlin, vice-president of the Consumers Company and chairman of the Prairie State Bank, Chicago; and Andrew Van Pelt of Van Pelt & Co., Philadelphia, Pa.

SHEFFIELD & TIONESTA.—*Deficit Status.*—The amount payable to this company under the provisions of the Transportation Act of 1920 as amended, in adjustment of claims for losses resulting from operations under federal control, has been certified to the Secretary of the Treasury by Division 4 of the Interstate Commerce Commission at $5,977. Commissioner Miller dissented on the ground that the formula applied by the majority was inaccurate.

SOUTHERN PACIFIC.—*Pacific Electric Bonds.*—The Pacific Electric has applied to the Interstate Commerce Commission for authority to use sinking fund money to purchase and, under certain conditions, to retire its collateral trust bonds held by the Southern Pacific. Of the $6,000,000 issue, the S. P. holds $3,751,200, the public $2,119,000, and the P. E. $129,800, the application states. The bonds would be purchased from the S. P. from time to time at cost.

SOUTHERN.—*Equipment Trust.*—This company has been authorized by Division 4 of the Interstate Commerce Commission to assume liability for $2,820,000 of 1⅞ per cent equipment trust certificates, series KK, to be sold at 99.2259 to Harris, Hall & Company and others. The proceeds are to be applied to the purchase of 1,450 composite type 50 ton hopper cars, of which the total cost is $3,770,000.

In approving the application, the division points out that the company has "large" cash resources and "could easily pay in full for the equipment now being purchased and so avoid borrowing any money for that purpose." Authority to assume this liability is warranted, it says, only because the road has been following a consistent program of debt retirement. In 1942 its long term debt was reduced $18,024,500, resulting, with other retirements, in a reduction of $1,046,561 in annual fixed charges, and in 1943 up to March 15 a further reduction of long term debt amounting to $3,813,000 was accomplished, with a proportionate reduction in charges. Since this debt retirement has been on a basis of about 6 per cent, while the issue under consideration is on a basis of about 2.03 per cent, it is to the company's advantage to use its funds to retire its more costly debt, said the division, and, "in the expectation that the program will be continued," the application is approved.

WABASH.—*Acquisition.*—This company has applied to the Interstate Commerce Commission for authority to acquire the property of the Wabash-Hannibal Bridge Company, now operated by it under lease, consisting chiefly of a 2.95-mile line from Hannibal, Mo., to East Hannibal, Ill., including a bridge across the Mississippi River, and to cancel the securities of the bridge company and dissolve it.

Average Prices Stocks and Bonds

	March 23	Last week	Last year
Average price of 20 representative railway stocks..	33.88	34.12	25.93
Average price of 20 representative railway bonds..	75.09	74.85	67.68

Dividends Declared

Mahoning Coal R. R.—$5.00, payable April 1 to holders of record March 26.

Norfolk & Western.—4 Per Cent Adj. Preferred, $1.00, quarterly, payable May 19 to holders of record April 30.

Reading.—25c, quarterly, payable May 13 to holders of record April 15.

Wilton.—$1.75, semi-annually, payable April 1 to holders of record March 17.

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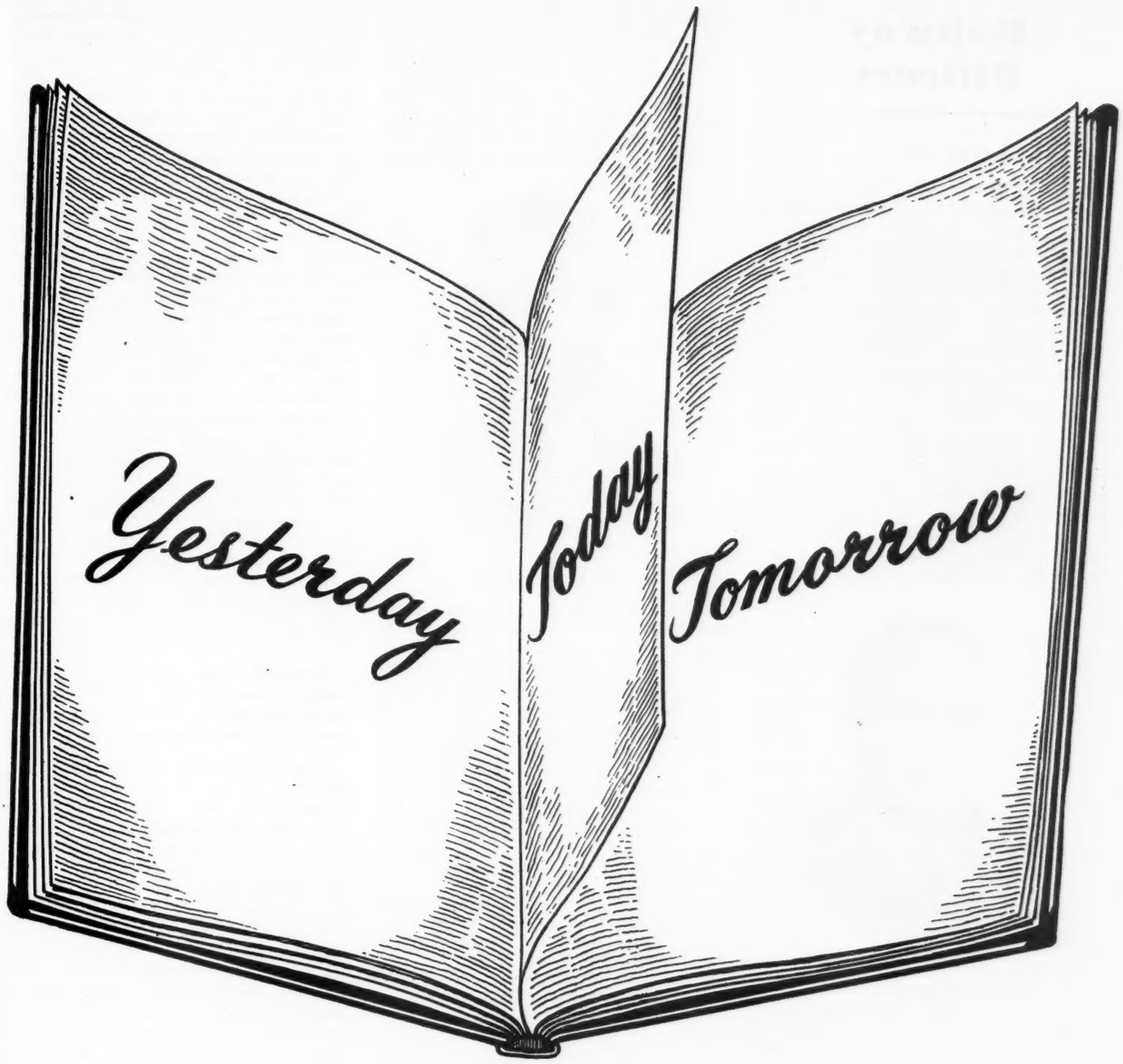

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Railway Officers

EXECUTIVE

Frank D. Beale, whose election to vice-president in charge of operation of the New York, Chicago & St. Louis (Nickel Plate) with headquarters at Cleveland, Ohio, was reported in the *Railway Age* of March 20, was born at Fredericksburg, Va., on November 4, 1890, and was graduated from the University of Virginia in 1915. He entered railway service in 1910 as a rodman of the Florida Railway (now abandoned) and subsequently served as instrumentman and assistant engineer. In October, 1915, Mr. Beale became an assistant section foreman of the Chesapeake & Ohio, and in August, 1916, he was promoted to assistant supervisor of track of the Rivanna district, being advanced to division engineer of the Clifton Forge division six months later. He served in the U. S. Army from 1917 to 1919 and in the latter year returned to the C. &

Frank D. Beale

O. as division engineer of the Clifton Forge division. In 1924 Mr. Beale was appointed trainmaster of the Richmond division, and advanced to superintendent of that division in March, 1926. In 1930 he was promoted to assistant general superintendent of the Western division, and in 1940 he was elected assistant vice-president and assistant to the president of C. & O., the Nickel Plate and the Pere Marquette, with headquarters at Cleveland.

Leo E. Clarahan, general freight traffic manager of the Wabash, has been elected vice-president in charge of traffic, of the Wabash and the Ann Arbor, with headquarters as before at St. Louis, Mo. He replaces **Gilbert G. Early,** whose death was reported in the *Railway Age* of March 13. Mr. Clarahan was born at Harper, Iowa, on August, 1891, and attended the University of Missouri School of Journalism. He entered railway service on August 10, 1912, as a freight clerk and trucker of the Wabash at Columbia, Mo., later being advanced to chief clerk and then to division freight and passenger agent at Moberly, Mo. In March, 1915, he was transferred to Des Moines, Iowa, and seven months later he was appointed chief clerk to the general freight agent at St. Louis. From June, 1917, to February, 1919, during the first World War, Mr. Clarahan served in the U. S. Navy, returning to the Wabash on the latter date as traveling freight inspector at St. Louis.

Leo E. Clarahan

In March, 1920, he was promoted to division freight agent at DesMoines and in June, 1921, he was transferred to Omaha, Neb. Mr. Clarahan was advanced to general industrial agent at St. Louis in January, 1927, and in February, 1933, he was appointed assistant general freight agent. In March, 1937, he was promoted to general freight agent and in January, 1938, he was further advanced to assistant freight traffic manager. On January 1, 1942, Mr. Clarahan was promoted to the position he held at the time of his new appointment, effective March 18.

G. R. Haworth, general manager of the Western Maryland, has been elected vice-president of that road, with headquarters

G. R. Haworth

as before at Baltimore, Md. Born on June 25, 1888, at Philipsburg, Pa., Mr. Haworth entered railroad service in 1905 as rodman of the Centre & Clearfield. In 1906 he became rodman of the Buffalo & Susquehanna, and in 1907, rodman of the Erie at Hornell, N. Y. Later in 1907 he worked as levelman for the city surveyor at New York, and as recorder in the marine survey and dredging department of New York, returning to the Erie as concrete inspector at Cuba, N. Y., in 1908. During 1909, Mr. Haworth was employed as foreman in the Pennsylvania state highway construction department at Pittsburgh, Pa., and as levelman of the Chicago, Burlington & Quincy. He was appointed transitman in charge of a field party of the C. B. & Q. in 1910, and later in that year he was employed as surveyor for the United States Engineers. In 1911 he went with the Western Maryland, serving successively as instrumentman in West Virginia and resident engineer at Hagerstown, Md., being transferred to Baltimore in 1912. In 1914 he was employed as engineer associated with the construction of the Johns Hopkins Engineering school, returning to the Western Maryland as resident engineer later in the same year. In 1924, Mr. Haworth was appointed division engineer in charge of maintenance and construction, remaining in that position until 1936, when he became engineer maintenance of way at Baltimore. He was appointed general superintendent in May, 1940, and in 1941 was promoted to general manager at Baltimore. Mr. Haworth will continue to carry out the duties connected with that latter office in his new position as vice-president and general manager.

W. D. McCaig, comptroller of the Seaboard, has been elected vice-president—accounts and freight claims, with headquarters as before at Wilmington, N. C.

Henry Kittredge Norton, executive officer of the New York, Susquehanna & Western, has been appointed trustee of that road, with headquarters as before at New York, succeeding **Walter Kidde,** whose death on February 9 was reported in the *Railway Age* of February 13. The appointment was made by Federal Judge William Smith of the United States District Court at Newark, N. J., and is subject to the approval of the Interstate Commerce Commission. Mr. Norton, who had been associated with Mr. Kidde during the entire period of the trusteeship which began in July, 1937, was born on October 14, 1884, at Chicago. He graduated from Chicago Manual Training school in 1901; received a B.S. degree from Dartmouth college in 1905; an M.A. degree from Pomona college in 1913, and was a graduate student at the University of California from 1914 to 1915. Admitted to the California bar in 1908, he was engaged in private practice at Los Angeles, Cal., until 1917, when he became an officer in the United States Army Air Service. At the conclusion of the war, he was appointed executive officer of the California Immigration Commission, remaining in that position until 1920, when, as a special newspaper correspondent, he went to Asia and then to Europe. Upon his return to the United States in 1923, he was appointed assistant to the general counsel of Armour & Co. From 1924 to 1934, Mr. Norton was variously engaged in economic, political and civic life, lecturing in modern history at Throop College of Technology, Pasadena, Cal., and in economics at Tsing Hua college, Peking, China; serving as

chairman of the General Conference on the Carribean in 1930; as press liaison officer for the American delegation to the 6th International Conference of American States, Havana, Cuba, in 1928, and as representative of the Carnegie Endowment for International Peace, countries of South America, in 1931. In 1934 Mr. Norton became treasurer of the National Broadcasting Company; in 1935, assistant

Henry K. Norton

to the president of the Radio Corporation of America, and in 1936, vice-president of the Radiomarine Corporation, remaining in the latter capacity until he entered railroad service in 1937 as executive officer of the New York, Susquehanna & Western, the position he was holding at the time of his recent appointment to the trusteeship of that road.

A. T. Lowmaster, whose appointment as executive vice-president of the Chesapeake & Ohio at Ricchmond, Va., and Cleveland, Ohio, was announced in the *Railway Age* of March 20, was born on August 29, 1882, at McCutchenville, Ohio. After graduating from high school and taking a course in a business college, he entered railway service on October 3, 1900, as clerk and errand boy in the master car-

A. T. Lowmaster

penter's office of the Erie. From July, 1903, to March, 1904, he was clerk to the division engineer of the Erie at Huntington, Ind., and from the latter date to June, 1906, he was clerk in the trainmaster's office in that city. Mr. Lowmaster served as voucher and statistical clerk in the general agent's office of that road at Chicago from June, 1906, to September 1, 1910, when he became chief clerk to the general agent at Chicago. On April 1, 1911, he entered the service of the Chesapeake & Ohio as chief clerk to the superintendent of terminals and construction at Chicago. He was appointed general agent at Chicago on March 1, 1912, and four years later was promoted to the position of superintendent of terminals there. On November 1, 1917, he was transferred to Richmond as assistant superintendent of transportation, and in July, 1923, he was promoted to superintendent of transportation. Mr. Lowmaster was appointed general superintendent of transportation on October 1, 1926, and advanced to the position of general manager on February 21, 1933. On January 1, 1937, he was appointed vice-president and general manager, which position he was holding at the time of his recent promotion.

OPERATING

Warren L. Humphrey, whose appointment as superintendent of car service of the Atlantic Coast Line and the Charleston & Western Carolina, with headquarters at

Warren L. Humphrey

Wilmington, N. C., was announced in the *Railway Age* of March 13, was born on March 21, 1887, at Utica, N. Y. Mr. Humphrey entered railroad service on January 6, 1906, as an employee of the Charleston & Western Carolina, and after serving as stenographer, file clerk and voucher clerk, he was appointed chief clerk to the general superintendent on April 1, 1909. On January 1, 1918, he became car accountant, and on July 1, 1918, was appointed chief clerk to superintendent, which position he held until March 1, 1920, when he became superintendent of car service. On June 1, 1931, he was appointed assistant superintendent car service of the Atlantic Coast Line and the Charleston & Western Carolina at Wilmington, which position he held until his recent promotion to superintendent of car service of those roads.

A. F. Carshner, trainmaster of the Gary division of the Elgin, Joliet & Eastern, has been promoted to superintendent of the Gary division, with headquarters as before at Gary, Ind., succeeding **C. H. Ireland** who retired on March 23. **W. J. Sloan,** general yardmaster at Gary has been advanced to assistant division superintendent, a newly-created position. **M. R. Joyce,** general yardmaster, has been promoted to trainmaster, with headquarters as before at Gary.

Charles J. Geyer, whose appointment as general manager of the Chesapeake &

Charles J. Geyer

Ohio, with headquarters at Richmond, Va., was announced in the *Railway Age* of March 20, was born on April 6, 1889, at Zanesville, Ohio, and was educated in the public schools and at Marshall College, Huntington, W. Va. Mr. Geyer entered railroad service in April, 1908, as a rodman in the construction department of the Chesapeake & Ohio at Huntington. Continuing in the construction department, he was appointed instrumentman at Cincinnati, Ohio, in November, 1910. In May, 1914, he became assistant engineer in the maintenance of way department, and in May, 1918, he was appointed division engineer in the same department, with headquarters at Richmond, holding this position until February, 1924, when he was appointed assistant superintendent, maintenance of way. He became engineer maintenance of way on October 8, 1926, and assistant to vice-president on April 16, 1929. Mr. Geyer was appointed engineer maintenance of way of the system on April 2, 1934, and remained in that position until his recent appointment as general manager.

Henry O. Barnham, commercial agent of the Atlantic & East Carolina, has been promoted to superintendent in charge of the transportation department at New Bern, N. C.

H. C. Bradford, chief clerk to the superintendent of the Atlanta Joint terminals of the Louisville & Nashville, has been promoted to assistant superintendent, with headquarters as before at Atlanta, Ga.

E. L. Keister, superintendent of the Cincinnati, New Orleans & Texas Pacific at Somerset, Ky., has been transferred to the St. Louis-Louisville division of the Southern, with headquarters at Louisville, Ky., succeeding **J. W. Payne,** who has been appointed assistant to the general superintendent of transportation, with head-

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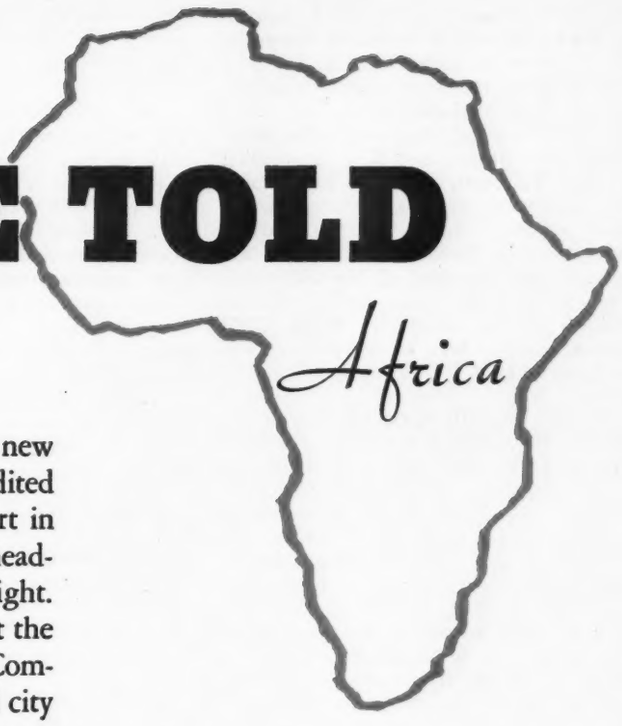
Now

IT CAN BE TOLD



SCHENECTADY—home of the Army's new wonder weapon, the Tank Killer credited with having played an important part in shattering Rommel's Afrika Corps, forcing it into headlong flight in Libya — is again in the national spotlight. Even though the new weapon was in production at the Schenectady plant of the American Locomotive Company for months, and thousands of employees and city residents knew what it was that was being built, not a word about it leaked out to the outside world. As a result, in newspapers throughout the country and on national radio programs, the men at the plant have received high praise and Schenectady itself has become known as "The City That Kept a Secret".

Officially called the M-7, this new weapon was invented when American Army observers with the British Army in Egypt returned to this country with reports of equipment that was needed to stop the Nazi tanks. Army engineers built a wooden model of the weapon they thought would do that, and in March, 1942, American Locomotive engineers were called upon to produce test models. These were built within a few weeks and were successfully tried out by the Army at the Aberdeen Proving Grounds. Since last June M-7's have been rolling out of Schenectady bound for the battle front — *America's answer to Rommel.*

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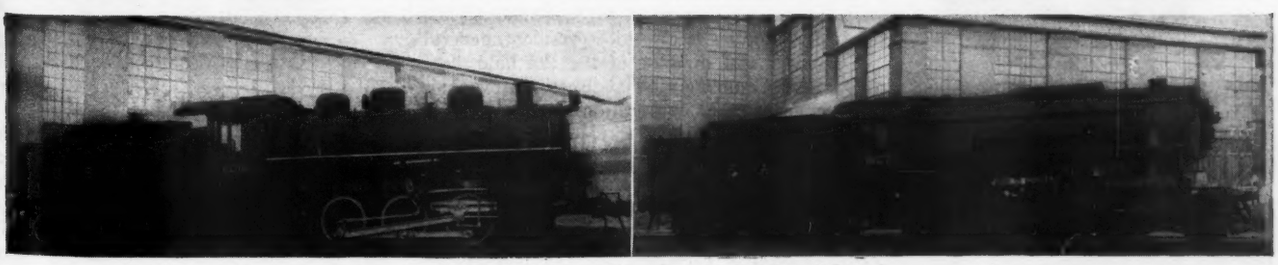

Also many Alco Locomotives have enlisted in our Armed Services

quarters at Cincinnati, Ohio. **R. F. Logan,** superintendent of the Richmond division of the Southern at Richmond, Va., has been transferred to the New Orleans & Northeastern, with jurisdiction over the New Orleans Terminal company, with headquarters at Hattiesburg, Miss., succeeding **E. M. Tolleson,** who has been transferred to Somerset to occupy the post vacated by Mr. Keister. **W. C. Bledsoe,** trainmaster at Macon, Ga., has been appointed superintendent of the Salisbury-Spencer terminals, with headquarters at Spencer, N. C., succeeding **R. G. Claiborne,** who has been transferred to Richmond to succeed Mr. Logan.

L. B. Kensall, superintendent of the Galena division of the Chicago & North Western, has been appointed acting assistant general manager of the Eastern district, with headquarters as before at Chicago, succeeding **W. A. Kraemer,** who is absent because of illness. **H. S. Smith,** superintendent of the Madison division, with headquarters at Madison, Wis., has been appointed acting superintendent of the Galena division at Chicago, replacing Mr. Kendall. **W. S. Alcumbrac,** superintendent of the Dakota division at Huron, S. D., has been transferred to the Madison division, relieving Mr. Smith, and **W. L. Mueller,** assistant superintendent of the Iowa division at Sioux City, Iowa, has been promoted to superintendent of the Dakota division, succeeding Mr. Alcumbrac. **J. F. Sainsbury,** trainmaster on the Iowa division, at Boone, Iowa, has been advanced to assistant superintendent at Sioux City, replacing Mr. Mueller and **A. G. Johnson** has been appointed trainmaster at Boone, relieving Mr. Sainsbury.

FINANCIAL, LEGAL AND ACCOUNTING

Benjamin D. Anthony, whose appointment as real estate and tax agent of the Delaware & Hudson, with headquarters at

Benjamin D. Anthony

Albany, N. Y., was announced in the *Railway Age* of March 20, was born on June 26, 1879, at Clifford township, Susquehanna county, Pa. Mr. Anthony received a civil engineering degree from the International Correspondence School of Scranton (Pa.) in 1912, and an LL.B. degree from the American Extension University of Chicago in 1934. He entered railroad service on August 1, 1903, as an employee of the Delaware & Hudson. On April 1, 1909, he was appointed city engineer of Carbondale, Pa., and on June 1, 1911, he entered the service of the New York, Ontario & Western at Carbondale, remaining with that road until April, 1912, when he went with the Scranton Gas & Water Company. He remained with the latter company until September 9, 1912, when he returned to the Delaware & Hudson as engineer in the real estate department, with headquarters at Scranton. In May, 1918, he was appointed engineer and tax agent at Albany, and on March 1, 1920, he became assistant real estate and tax agent, the position he was holding at the time of his recent promotion.

Edward W. Wheeler, vice-president and general counsel and a director of the Maine Central at Portland, Me., has been appointed general counsel of the Boston & Maine, succeeding **William A. Cole,** whose death on March 2 was reported in the *Railway Age* of March 6. Mr. Wheeler

Edward W. Wheeler

will continue his duties with the Maine Central and will maintain headquarters at the general offices of that road at Portland, and at the general offices of the Boston & Maine at North Station, Boston, Mass. Born on April 12, 1876, at Brunswick, Me., Mr. Wheeler graduated from Bowdoin college in 1898, and was awarded an honorary M.A. degree by that institution in 1923, and an honorary LL.D. degree in 1939. He was admitted to the bar in 1900, and engaged in general law practice at Brunswick from that time until 1922, when he was elected a director and appointed general counsel of the Maine Central, becoming vice-president and general counsel of that road in September, 1932. Mr. Wheeler is also vice-president, general counsel and director of the Portland Terminal Company, and a director of various other railroad corporations.

The firm of **Beckwith, Ohlinger, Koles & Wolf** of Toledo, Ohio, has been appointed general attorneys of the Ann Arbor.

Lewis F. Ormond, assistant comptroller of the Atlantic Coast Line, has been elected comptroller, with headquarters as before at Wilmington, N. C., succeeding **W. D. McCaig,** whose appointment as vice-president—accounts and freight claims, is reported elsewhere in these columns.

Herbert I. Rogers has been appointed district claim agent of the New York Central, with headquarters at Corning, N. Y., succeeding **William W. Suggs,** whose transfer to the re-established Watertown district was announced in the *Railway Age* of March 6. **Howard L. Krueger** has been appointed special claim agent at New York, with duties as assigned.

TRAFFIC

J. C. Dykes and **R. W. Napier** have been appointed district passenger agents of the Seaboard, with headquarters at Columbia, S. C., and Petersburg, Va., respectively.

A. P. Smith has been appointed general freight agent of the Texas Electric, with headquarters at Dallas, Tex., succeeding **E. H. Pierson** who has resigned.

R. C. Murphy, city passenger and ticket agent of the Great Northern at Spokane, Wash., has been appointed general agent, with the same headquarters, a change of title.

E. A. Ahlers has been appointed general agent of the Wabash, with headquarters at St. Louis, Mo., succeeding **R. G. McClure,** who has been granted leave of absence to enter the Army.

C. J. Sayles, freight traffic manager in charge of the rate department of the Wabash, has been promoted to general freight traffic manager, with headquarters as before at St. Louis, Mo., succeeding **L. E. Clarahan,** whose election to vice-president in charge of traffic is reported elsewhere in these columns. Mr. Sayles was born on May 31, 1878, at Mt. Pleasant, Iowa, and first entered railway service on

Charles J. Sayles

May 30, 1899, as a ticket clerk on the Union Pacific at Council Bluffs, Iowa. Five years later Mr. Sayles entered the service of the Wabash as assistant passenger and ticket agent at Omaha, Neb. In February, 1905, he was appointed city passenger agent at Council Bluffs, and from

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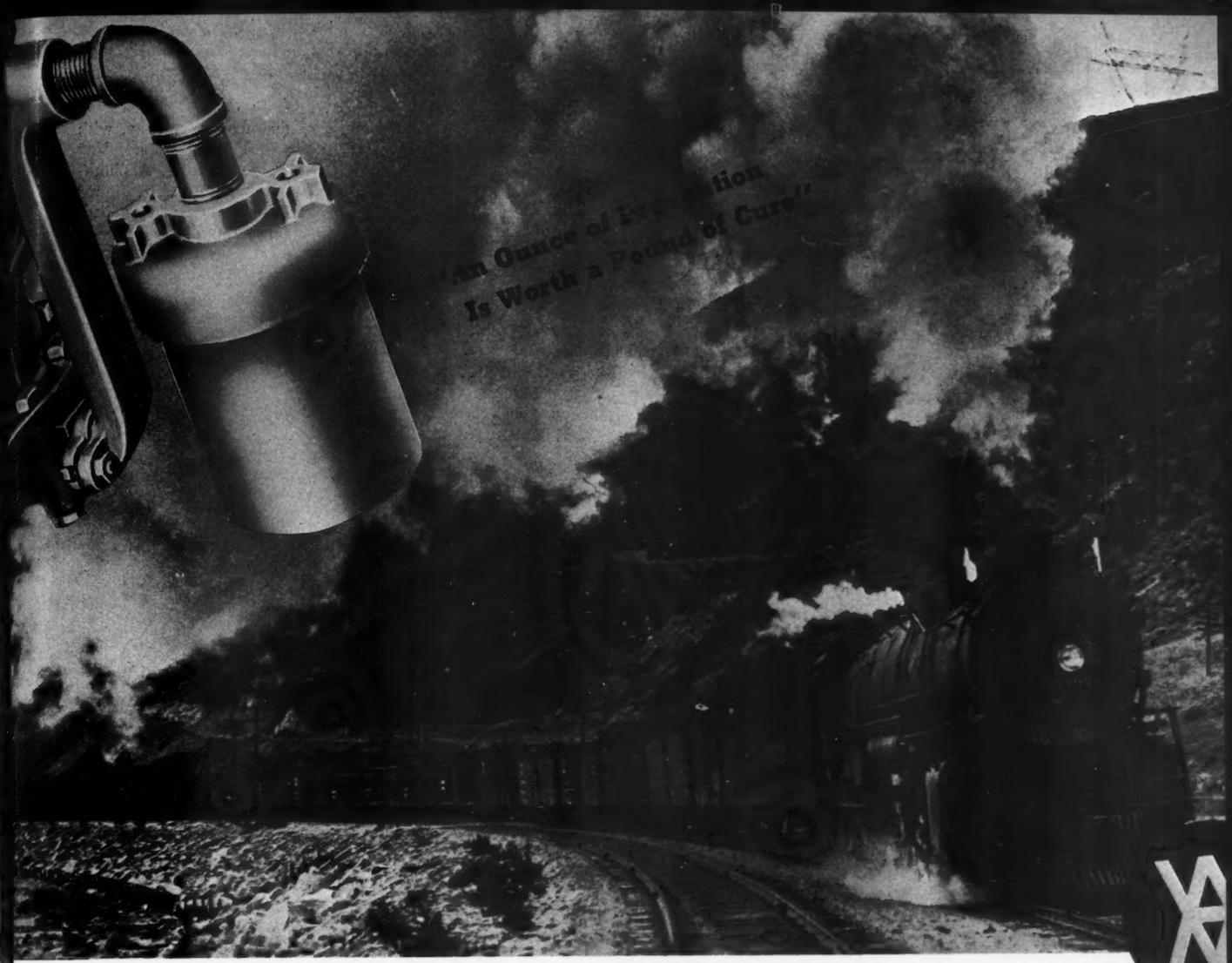

...*Clean Air* in the BRAKE SYSTEM

Helps to Keep Wartime Traffic *Moving*

Maintenance of proper brake performance is even more important now than ever before—when all transportation equipment is being used intensively.

To keep the brake system clean has been a major consideration in the structural design of modern apparatus. Dirt is excluded from assembled and installed devices under normal conditions by built-in protective features — compressor inlet filters — dirt collectors — strainers in valves — filters in pipe connections.

Inherent efficiency of these devices can be preserved by freeing them of accumulated dirt at regular intervals. Other simple, yet effective, precautions are: During yard charging of trains blow dirt from the line before connecting to brake pipe . . . When replacing broken pipes, loosen and blow out scale from new sections . . . If dummy couplings are installed, use them—to seal brake and signal couplings . . . When exchanging valve portions in yards or terminals, protect exposed surfaces from grit and cinders.

WESTINGHOUSE AIR BRAKE CO.
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June, 1905, to October, 1908, he served as city freight and passenger agent at the same point. At the end of this period, Mr. Sayles became contracting agent at Omaha, holding this position until April, 1912, when he was made commercial agent at Hannibal, Mo. In July of the following year he was sent to St. Louis as chief clerk in the general traffic department. After seven years in this capacity he was advanced to assistant general freight agent, with the same headquarters. In January, 1928, Mr. Sayles was promoted to general freight agent, at St. Louis, and on September 16, 1936, he was advanced to freight traffic manager, holding that position until his new appointment, effective March 18.

L. E. Clark has been promoted acting division freight and passenger agent of the Wabash, with headquarters at Omaha, Neb., succeeding **John W. Wack,** who has been granted a leave of absence for government service at Washington, D. C.

E. B. deVilliers, general freight agent of the Gulf, Mobile & Ohio, with headquarters at New Orleans, La., has been promoted to freight traffic manager (rates and divisions), with headquarters at Mobile, Ala. **D. F. McCullough,** chief clerk of the general freight agent at New Orleans, has been advanced to assistant general freight agent, with the same headquarters.

R. E. Drummy, general passenger agent of the Union Pacific, has been promoted to assistant traffic manager, with headquarters as before at Los Angeles, Cal., a newly-created position. **M. H. Fowler,** assistant general passenger agent at Los Angeles, succeeds Mr. Drummy as general passenger agent. **Carl H. Saltmarsh,** general agent, passenger department, with headquarters at Salt Lake City, Utah, has been advanced to assistant general passenger agent at Los Angeles, succeeding Mr. Fowler, and **Clarence E. Potter,** general agent, passenger department, with headquarters at Hollywood, Cal., has been transferred to Salt Lake City, succeeding Mr. Saltmarsh. **V. J. Schmittroth,** special representative of the passenger traffic department at Los Angeles, succeeds Mr. Potter at Hollywood.

Following the separation of the traffic departments of the Baltimore & Ohio, and the Alton, effective March 15, several new promotions have been announced by the latter road. **J. A. Behrle,** general freight agent of the Alton and the Western lines of the B. & O., has been promoted to assistant freight traffic manager of the Alton, with headquarters as before at Chicago. **J. H. Walkmeyer,** assistant general freight agent at Kansas City, Mo., has been advanced to general freight agent, with headquarters at Chicago. **F. A. Malmberg,** district freight agent, has been promoted to assistant general freight agent, with headquarters as before at Chicago. **Charles J. Kucera,** assistant chief clerk of the western freight traffic manager, and chief clerk to the western general agent, has been advanced to assistant general freight agent, with headquarters as before at Chicago. **P. K. Walden,** live stock agent, has been promoted to general live stock agent, with headquarters as before at Chicago.

ENGINEERING & SIGNALING

A. A. Visintainer has been appointed assistant engineer in the department of structures of the Erie at Cleveland, Ohio, succeeding **E. W. Steele,** who died on December 21.

Lyman B. Sinclair has been appointed supervisor of signals of the Shamokin division of the Reading, with headquarters at Tamaqua, Pa., succeeding **I. T. Kaufman,** who has retired.

Morris D. Carothers, whose promotion to chief engineer of the Alton, with headquarters at Chicago, was announced in the *Railway Age* of March 20, was born at Cutler, Ohio, on April 24, 1886, and attended Marietta College, Marietta, Ohio. He entered railway service on June 1, 1908, as a rodman on the Erie at Washingtonville N. Y., later serving as an inspector on the Hudson tunnel at New York. On May 1, 1909, he went with the Baltimore & Ohio as an assistant track foreman at Philadelphia, Pa., and two months later he was promoted

M. D. Carothers

to extra gang foreman, serving in that capacity on the Philadelphia and Cumberland divisions. From June 1, 1910, to October 1, 1912, he served as instrumentman in charge of an engineering party and engineer in charge of a survey on the Cumberland and Pittsburgh divisions, being appointed assistant supervisor of track on the latter date. Mr. Carothers was advanced to supervisor of track on the Illinois division on February 15, 1913, and was later transferred to the Ohio division. On November 1, 1917, he was promoted to assistant division engineer of the Toledo division and on July 1, 1919, he was appointed maintenance assistant of the Baltimore & Ohio Chicago Terminal, with headquarters at Chicago. On February 15, 1937, he went with the Alton as division engineer of the Eastern division, with headquarters at Bloomington, which position he held until his recent promotion, effective March 16.

L. T. Nuckols, assistant chief engineer of the Chesapeake & Ohio, has been appointed engineer maintenance of way, with headquarters as before at Richmond, Va., succeeding **Charles J. Geyer.** A photograph of Mr. Geyer and a biographical sketch of his railway career appear elsewhere in these columns. Mr. Nuckols was born on December 12, 1890, near Rockville, Va., and after attending the local

L. T. Nuckols

schools, he completed his education at Parkersburg, W. Va. He entered railway service on July 1, 1907, as an employee of the South & Western (now the Clinchfield), and subsequently went with the Louisville & Nashville, where he was engaged in location and construction work, advancing from chainman to assisting locating engineer. For 18 months beginning in 1915, Mr. Nuckols served with the Bureau of Valuation of the Interstate Commerce Commission. He left the commission to enter the service of the C. & O. on October 3, 1916, as resident engineer and was connected with the construction of the line from Man, W. Va., to Gilbert, and with various other heavy construction projects in West Virginia. On November 20, 1923, Mr. Nuckols was promoted to district engineer at Ashland, Ky., and on January 1, 1932, was appointed resident engineer at Huntington, W. Va. On October 6 of the latter year he was appointed assistant division engineer at Ashland, being promoted to division engineer at the same point on June 1, 1936. He was appointed engineer of track on June 1, 1939, and on January 18, 1941, was advanced to assistant chief engineer at Richmond, which position he was holding at the time of his recent appointment.

Thomas L. Robinson, roadmaster of the Atlantic & East Carolina at Kinston, N. C., has been appointed general supervisor in full charge of the maintenance of way department of that road, with headquarters at New Bern, N. C.

Effective April 1, **Burr Robert Kulp,** chief engineer of the Chicago & North Western, has also been appointed chief engineer of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters as before at Chicago, and **Ralph R. Strother,** chief engineer of the Omaha, has been appointed assistant chief engineer of the North Western and the Omaha, with head-

News Department continued on next left-hand page

Keep 'Em Rolling

HSGI
Wear Resisting PARTS

EVERY factor which helps to reduce repairs is of vital importance to the war-time transportation efforts.

From this analysis it is highly significant that the locomotives which are turning in the highest monthly mileage are equipped with parts made from HUNT-SPILLER *Air Furnace* GUN IRON.

The resistance of HSGI parts to frictional wear and high superheat temperatures will help you to "Keep 'em Rolling." Repair costs will be lower because replacements will be fewer.

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Reg. U. S. Trade Mark
Cylinder Bushings
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Dunbar Sectional Type Packing
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Cylinder Liners and Pistons for Diesel Service

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HUNT-SPILLER GUN IRON
Air Furnace

quarters at Chicago. **Frank C. Huffman,** assistant chief engineer of the North Western and **John A. Lorch,** assistant to the chief engineer of the North Western at Chicago, will both retire on March 31. **L. R. Lamport,** division engineer of the Galena division of the North Western, has been promoted to assistant to the chief engineer of the North Western and the Omaha, with headquarters as before at Chicago. **E. C. Vandenburgh,** engineer of maintenance of the North Western, has been appointed also engineer of maintenance of the Omaha, and **F. W. Hillman** and **C. E. Miller,** assistant engineers of maintenance of the North Western, have been appointed also assistant engineers of maintenance of the Omaha, with headquarters as before at Chicago. **A. E. Bechtelheimer,** engineer of bridges, and **A. R. Harris,** assistant engineer of bridges, are appointed also to the same positions on the Omaha. **John G. Bock,** assistant chief engineer of the Omaha, has been appointed division engineer of the Eastern division of that road, with headquarters as before at St. Paul, Minn., and **H. W. Jensen,** assistant engineer of the Omaha at St. Paul, has been appointed division engineer of the Western division of that road, with headquarters at St. Paul.

Peter V. Thelander, division engineer of the Peninsula division of the North Western at Escanaba, Mich., has been transferred to the Galena division at Chicago, succeeding Mr. Lamport. **F. W. Creedle,** division engineer of the Sioux City district of the Iowa and Northern Iowa divisions, at Sioux City, Iowa, has been transferred to the Peninsula division, replacing Mr. Thelander, and **A. E. Benson,** assistant engineer, Galena division, has been promoted to division engineer at Sioux City, relieving Mr. Creedle.

E. R. Logie, engineer of the Southern Ontario district of the Canadian National, has been appointed acting engineer maintenance of way of the Central region, with headquarters as before at Toronto, Ont., to take the place of **L. Brusseau,** who is absent due to illness. **H. E. Smith** has been appointed acting district engineer at Toronto to succeed Mr. Logie.

MECHANICAL

H. E. Logan, road foreman of the Chicago, Burlington & Quincy at St. Joseph, Mo., has been promoted to assistant master mechanic of the St. Joseph division, with headquarters at Kansas City, Mo., a newly-created position.

Ralph D. Bryan, engineer of car construction of the Atchison, Topeka & Santa Fe at Topeka, Kan., has been promoted to mechanical assistant at Chicago, a newly created position and **M. Russell Buck,** assistant to the engineer of car construction at Topeka, has been advanced to engineer of car construction at that point, succeeding Mr. Bryan.

C. F. Weaver, whose appointment as assistant general superintendent of car equipment of the Canadian National with headquarters at Toronto, Ont., was announced in the *Railway Age* of February 13, was born at London, England. Mr. Weaver entered railway service in 1919 as a carpenter in the Montreal (Que.) car shop of the Canadian National, and subsequently served successively as assistant foreman and as superintendent of car shop until

C. F. Weaver

October 1, 1928, when he became superintendent of car equipment of the Montreal district. In 1937, Mr. Weaver was appointed superintendent of car shop at London, Ont., the position he was holding at the time of his recent appointment.

OBITUARY

John R. Ablett, industrial agent of the Delaware & Hudson at Albany, N. Y., died at that city on January 29.

Luther L. Bankard, superintendent of transportation of the Detroit, Toledo & Ironton, with headquarters at Dearborn, Mich., died on February 22.

Herbert N. Proebstel, lumber agent of the Northern Pacific, with headquarters at Seattle, Wash., died recently at Seattle, following a brief illness.

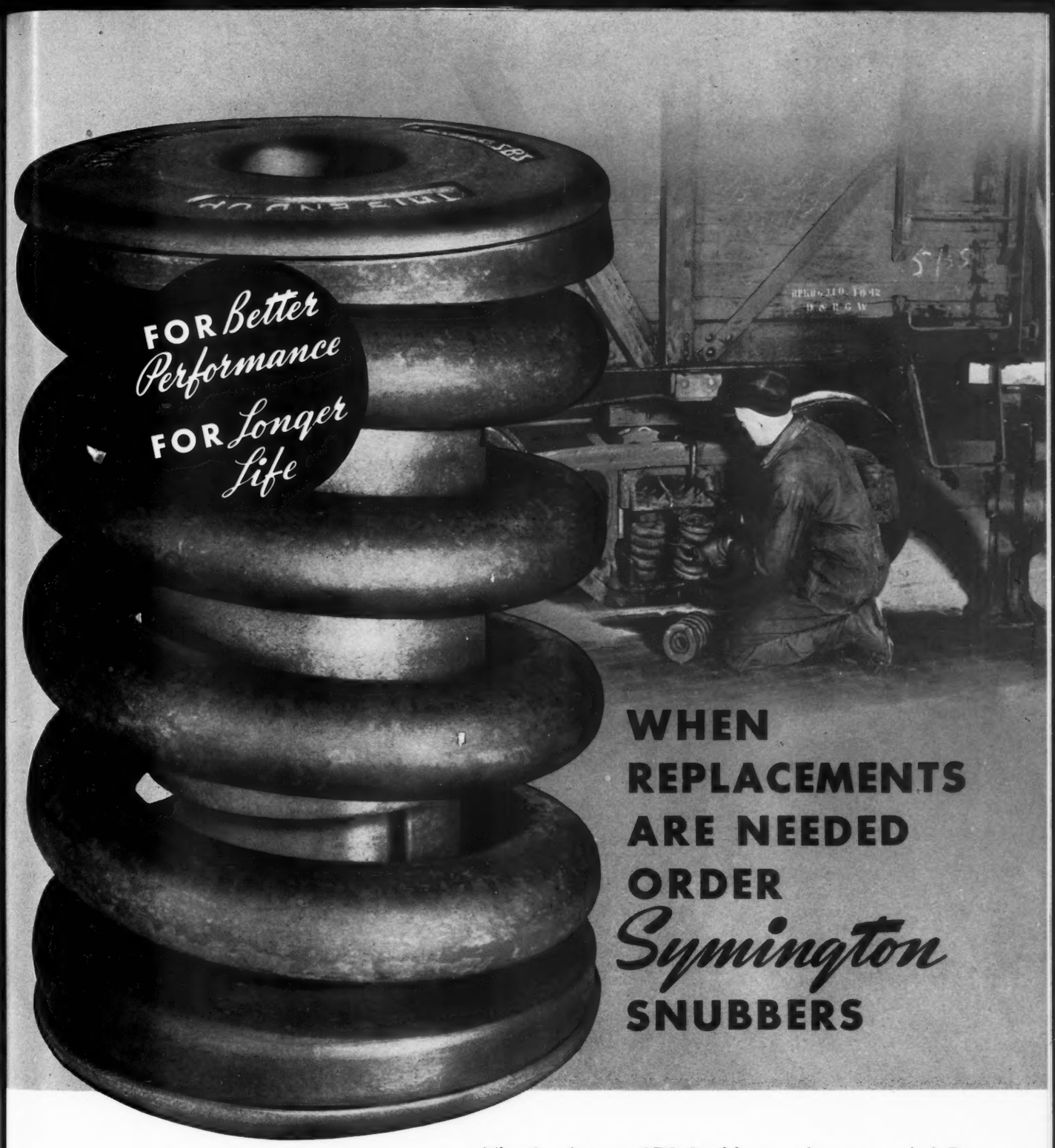
J. Edward Reilly, who retired in 1940 as general western passenger agent of the Pere Marquette, died at Chicago on March 18 after a lengthy illness.

F. S. Elliott, who retired in 1928 as assistant general manager of the Western lines of the Great Northern, died on March 20 at his home at Portland, Ore.

J. B. Phelan, superintendent of car service of the Pennsylvania at Philadelphia, Pa., died on March 15. Born in 1884, at Moberly, Mo., Mr. Phelan was graduated from the University of Missouri, with a degree in civil engineering, and entered the service of the Pennsylvania as a rodman on the Middle division in 1907. After varied experience, he became superintendent of the Schuylkill division in 1923, and in 1926 was transferred to the Conemaugh division. He was appointed superintendent of freight transportation, Eastern region, later in the latter year. Mr. Phelan became superintendent of the Philadelphia division in 1927 and of the Middle division in 1931, becoming assistant superintendent of car service on May 1, 1936, and being promoted to superintendent of car service in 1938.

Charles O. Dambach, superintendent of the Pittsburgh & West Virginia at Pittsburgh, Pa., died on March 23. Mr. Dambach was born on January 15, 1877, at Greenville, Pa., and entered railway service in February, 1893, as a clerk of the Pennsylvania lines, west of Pittsburgh. In August, 1893, he went with the Pittsburgh, Shenango & Lake Erie (now Bessemer & Lake Erie), and after serving in various capacities for that road and the B. & L. E., he became assistant general yardmaster of the Standard Steel Car Company at Butler, Pa., in September, 1902. In March, 1903, he was appointed chief clerk to the superintendent of the West Side Belt (now Pittsburgh & West Virginia), subsequently serving as chief dispatcher in charge of dispatchers and trainmen, and, in October, 1905, becoming chief clerk to the general superintendent of the Wabash lines east of Toledo and superintendent of telegraph. In April, 1907, he was appointed trainmaster of the Eastern district, Pittsburgh-Toledo division, and in June, 1908, he was transferred to the Wabash-Pittsburgh Terminal and the West Side Belt, becoming superintendent of those roads in January, 1912. Mr. Dambach became vice-president and general manager of the Unity Railways Company in August, 1917, and in October, 1923, was appointed superintendent of the Pittsburgh & West Virginia, the position he held at the time of his death.

Arthur E. Lloyd, assistant general manager of the New York Central Lines West of Buffalo and the Ohio Central Lines with headquarters at Cleveland, Ohio, died on March 18 at Toledo, Ohio. Mr. Lloyd was born in Wickliffe, Ohio, in 1878. He was graduated from Western Reserve University in 1903, and was later admitted to the bar in Ohio. He entered railway service in 1892 as a telegraph operator on the Lake Shore & Michigan Southern (now a part of the New York Central) and was later promoted to trainmaster. In 1903, he was appointed a trainmaster on the New York Central at Dunkirk, N. Y., and in 1916 was promoted to assistant superintendent of the Michigan division, with headquarters at Toledo. In 1917 he was transferred to the Erie division, with headquarters at Erie, Pa., and in 1918 he was transferred to Alliance, Ohio, and later to the Western division at Chicago. On March 1, 1930, Mr. Lloyd was promoted to assistant to the vice-president at Chicago, and in November of the same year he was appointed general superintendent of the New York terminal district, including the marine deparmtent. On October 10, 1931, when the position of general superintendent was discontinued, he was appointed superintendent of the New York Terminal district, including the marine department, and in April, 1932, he was appointed to the newly-created position of superintendent of the Chicago Termnal district. In June, 1938, Mr. Lloyd was promoted to the position he held at the time of his death.



The Symington SBS Snubber replaces one A.A.R. Spring—improves spring group performance by eliminating destructive car bounce, and preventing solid blows. By reducing coil spring breakage, Symington SBS Snubbers keep cars off the repair tracks, increase freight car hours in service.

DUE TO THE RUBBER SHORTAGE the type SBR Snubber has been replaced by the SBS—in which transverse coil springs are substituted for the rubber block. Proved in laboratory and road tests, the SBS Snubber has been in actual service for over two years.

OVER 40 YEARS OF RESEARCH AND DEVELOPMENT OF RAILWAY EQUIPMENT

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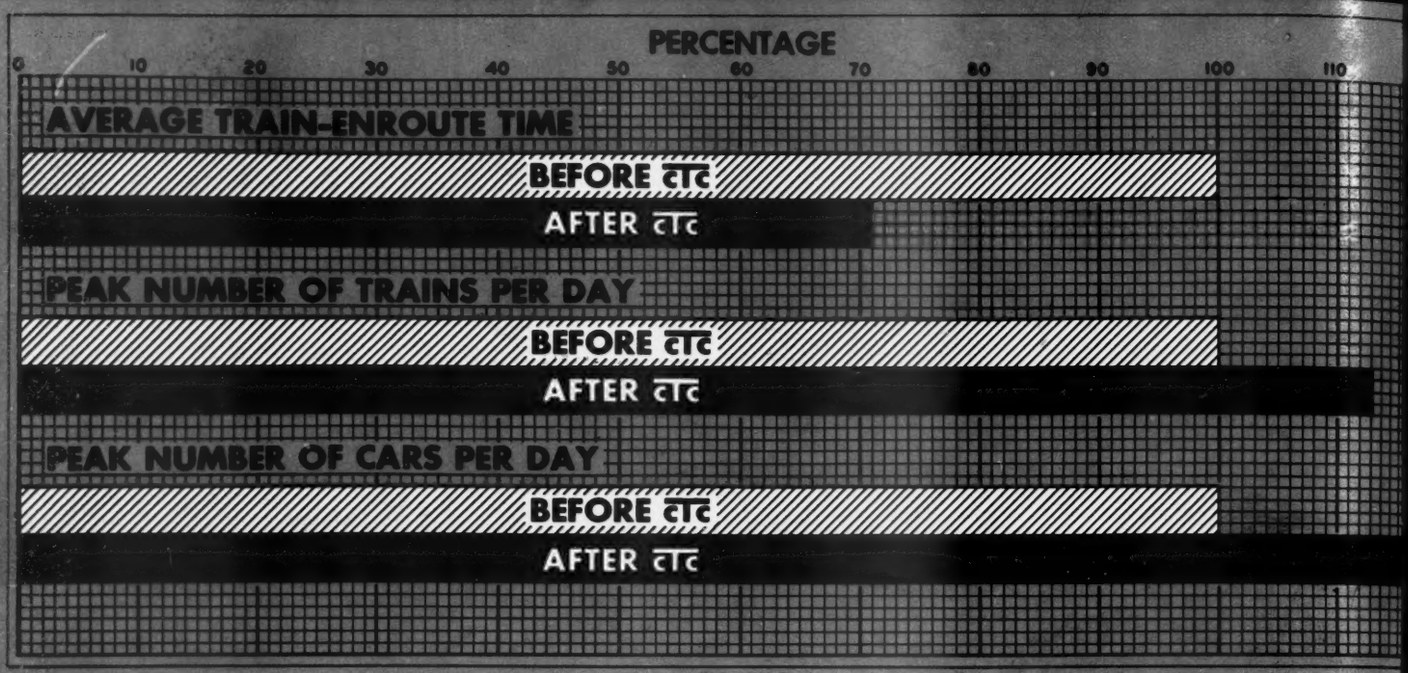
TRACK CAPACITY INCREASED WITH CTC



G-R-S Centralized Traffic Control on a sub-division more than 100 miles long shows—

- **29% reduction in average train-enroute time,** notwithstanding a

  13.1% increase in peak number of trains per day, and an 18% increase in peak number of cars per day handled in area.

This reduction in train-enroute time, achieved during these new high peak periods (and during severe winter weather), demonstrates how CTC makes possible appreciable increases in track capacity.

Have you a sub-division where increased track capacity would be desirable? If so, consult our nearest District Office.

G·R·S

GENERAL RAILWAY SIGNAL COMPANY

New York Chicago ROCHESTER N. Y.

Free book on Tool Steel and its Treatment

Here's a new book that will be of practical value to anyone who works with tool steel. It's called *Tool Steel Treaters' Guide* and is a "how-to" manual from start to finish.

You'll find in it specific information on how to forge, normalize, anneal, spheroidize, cool and harden tool steel. You'll find many clear, informative photographs on quenching, P-F fracture standards, hot-acid etching, and grain structure. Also, there are two full-color charts showing the actual heat and temper colors of steel, through the heating and tempering ranges.

One section of the book is devoted to definitions of some of the terms used in the steel industry—hundreds of items are defined, ranging from "Air-Hardening Steel" to "Yield Strength." These definitions should be particularly helpful to new men in war-production jobs involving the handling of steel.

Another feature of the *Tool Steel Treaters' Guide* is its section of useful tables: weights and areas of square and round bars; weight per linear foot of flat bar steel; areas and weights of different shapes of steel bars; Brinell hardness numerals; hardness-conversion tables; temperature-conversion tables; revolutions per minute for assigned surface speeds; English-metric system equivalents.

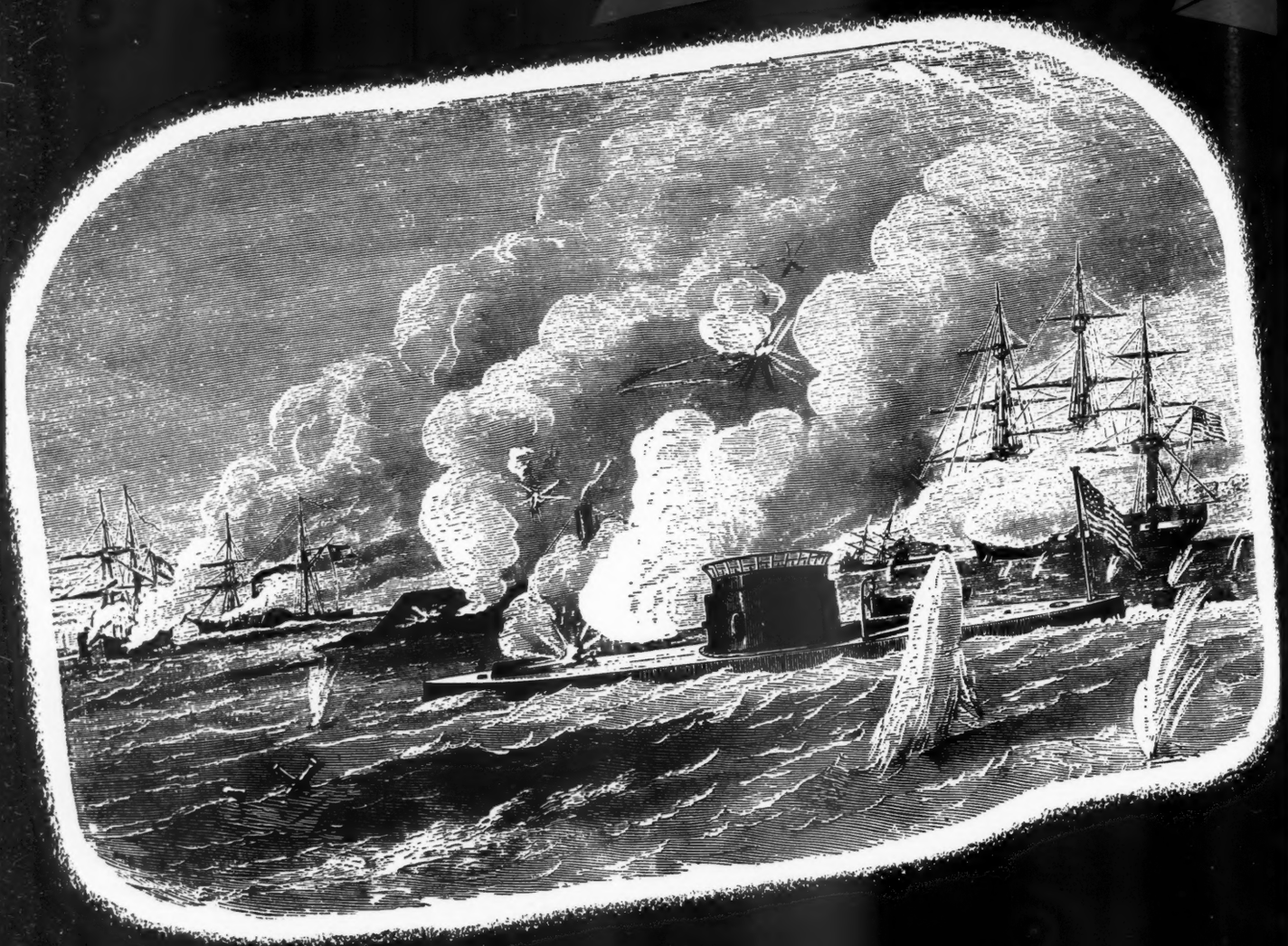
Anyone who works with tool steel will find the 116 pages of the Tool Steel Treaters' Guide *packed with usable information. The guide will gladly be furnished free of charge to anyone who is engaged in war production. Write to Bethlehem Steel Company, Bethlehem, Pa., for a copy today.*

A Few of the Subjects Covered: NORMALIZING • ANNEALING • TEMPERING • QUENCHING MEDIA • MICROPHOTOGRAPHS OF HIGH-SPEED STEELS • HEAT AND TEMPER COLOR CHARTS • DEFINITIONS OF STEEL INDUSTRY TERMS • WEIGHTS OF STEEL BARS • FARENHEIT-CENTIGRADE • CONVERSION TABLES • DECIMAL EQUIVALENTS OF AN INCH FOR EACH 64TH.

BETHLEHEM STEEL

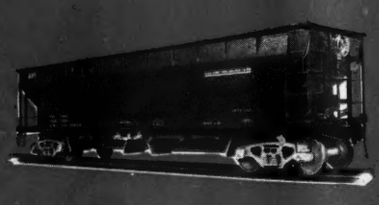
BETHLEHEM STEEL COMPANY

"AT ANCHOR

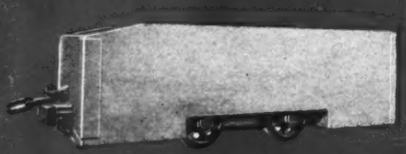


A.C.F. HOPPER CAR

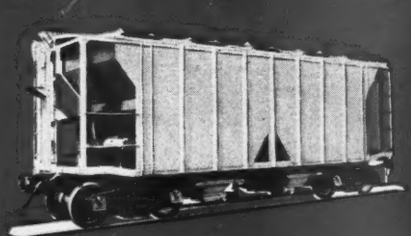
A.C.F. LARGE CAPACITY DROP-BOTTOM MINE CAR



A.C.F. BALLAST CAR



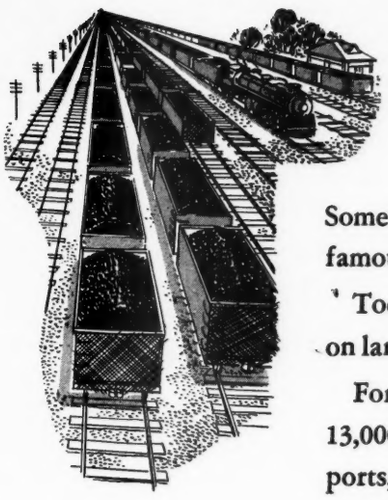
A.C.F. LARGE CAPACITY MINE CAR



A.C.F. COVERED HOPPER CAR

A.C.F. GONDOLA CAR

"IN HAMPTON ROADS SHE LAY" ★★★



Some fourscore years ago, the *Monitor* and the *Merrimac* clashed in their famous encounter off Hampton Roads.

Today, another battle of Hampton Roads is being fought—but this time on land, where our railroads are now winning for us a magnificent victory!

For when the Navy requisitioned the colliery fleet that formerly carried 13,000,000 tons of coal a year from Hampton Roads to New England ports, this tremendous volume of fuel — so essential to our war industries and to the health and well-being of our citizens — descended overnight upon the rails.

An appalling extra burden to thrust upon railroads already carrying the heaviest traffic the world has ever known. And, to make matters worse, this entire flood of coal had to be channelled into New England through four narrow gateways — Poughkeepsie Bridge, Albany, Maybrook, and Harlem River!

How swiftly and successfully the railroads absorbed this suddenly added load, taking it right in their stride without a quiver — how resourcefully they found the ways and means to handle it at a time when the heaviest of military traffic was piling itself upon record-breaking movements of freight — is but one more proof of the truth of the saying, "Put it up to the railroads, and they will put it through!"

As builders of railroad rolling stock of every kind — save locomotives, alone — a.c.f. has served the transport of this nation through 88 years and in 4 wars.

a.c.f. AMERICAN CAR AND FOUNDRY COMPANY

NEW YORK • CHICAGO • ST. LOUIS • PHILADELPHIA
PITTSBURGH • CLEVELAND • ST. PAUL • SAN FRANCISCO

★ ***WHATEVER a.c.f. BUILDS—IT IS KNOWN TO BUILD WELL!***

Conserving bridge materials

Conservation of materials is not new to railroad bridge and building men, having been followed since the first line was built. While it has always been important, it probably was never more important than it is now. Heretofore it has generally been a matter of primary concern to the railroads alone, but now it affects the welfare of the entire nation.

The welfare torch has proved to be of marked aid in the prolongation of the service life of steel structures. When girders are reduced through corrosion near the end bearing plates to the extent that they need repairs, the wasted steel can be restored to its original strength by welding plates on the angles and webs. These plates can often be secured from stores of secondhand materials.

Some of the older steel structures were designed for lighter loads than they are now required to carry. Many of these structures can be strengthened by welding on additional stiffener angles or other additional support. Structures that would have to be replaced can thereby be kept in service for a number of years.

CLIMAX FURNISHES AUTHORITATIVE ENGINEERING DATA ON MOLYBDENUM APPLICATIONS.
MOLYBDIC OXIDE—BRIQUETTED OR CANNED • FERROMOLYBDENUM • "CALCIUM MOLYBDATE"

Climax Molybdenum Company
500 Fifth Avenue • New York City

MOLY

ED SPLITS A SECOND—AND SAVES A LIFE

Baggage Clerk, Ed Gaynor, was on duty in a New York railroad passenger station at 6:30 p.m. when he picked up his telephone to answer a call.

"This is Sydenham Hospital, Manhattan Avenue and 123rd Street," a woman's voice told him. "One of our patients, a young boy, must have a special tetanus anti-toxin within the next three hours, if we save his life. The Hospital has been telephoning to laboratories as far away as Boston. We have finally located the necessary anti-toxin in the Sharp & Dohme Philadelphia laboratory. What can you do to get the anti-toxin to us quickly? I'm holding the Philadelphia telephone line open."

Ed Gaynor glanced at his railroad's time card. "Which Philly railroad station is closest to that Philadelphia laboratory—North Philadelphia or Thirtieth Street?" he demanded.

"About the same distance," the Hospital superintendent answered.

"Rush your package to the nearest one," he urged her. "Deliver it to the station baggage master. He'll put it on Train 168 leaving North Philadelphia Station at 7:22 and Thirtieth Street Station at 7:13. I'll take it off the train here at New York—and you have a motor-car cop waiting for me in our Thirty-first Street taxi exit."

Then Ed called Baggage Checker Eagan at the North Philadelphia Station. He also called Baggage Checker Mahr at the Thirtieth Street Station. "Take a package from the Sharp & Dohme Laboratory and give it to the baggage master on Train 168. Don't stop to make out papers. This is an Emergency Shipment Service."

When Train 168 reached the railroad's New York Passenger Station, having done its eighty-six miles in its scheduled eighty-six minutes, Ed had the precious package before 168 stopped rolling.

He ran through the station to the waiting motor-car cop, thrust the package into the cop's hand and shouted: "Sydenham Hospital, Manhattan Avenue and 123rd Street. Hurry! Our station cops will clear the Seventh Avenue exit for you."

Then Ed went back to the routine job of serving travelers with bags and trunks and miscellaneous parcels.

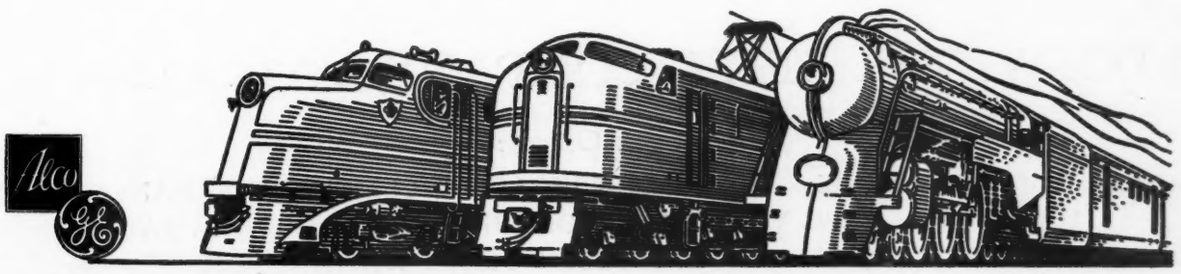
A few days later, Sydenham Hospital sent the railroad this letter:

> "*It is not often that split seconds count, but they did in this case—here it was really a matter of life and death, and you and your Department measured up to every possible expectation and went far beyond that in making it possible to effect prompt delivery. Sydenham Hospital wishes to express its sincere thanks and appreciation for your prompt and excellent co-operation.*"

Says slim, red-headed Ed Gaynor: "Maybe I stepped on it a little lively because quite a few years ago, when I was on furlough, I worked in a Long Island Hospital. But in this case, it was railroad team work all along the line, from Philly to New York, that turned the trick."

Railroaders are always doing the impossible—by teaming up on vital jobs.

—The Trackwalker



AMERICAN LOCOMOTIVE • GENERAL ELECTRIC

113-19-9600

THE WROUGHT STEEL WHEEL

VI WHEEL DESIGNS

THE wrought steel wheel with its simplicity of construction is ideally adapted for mass production. If this is to be fully achieved it must not be hampered by a multiplicity of designs.

A wheel rolling mill in full operation is a swiftly paced, smoothly moving unit of production. The blocks of hot steel from the furnaces pass to the forging press, to the rolling mill, and then to the dishing press in a steady rythmic flow. The whole process is designed for the production of a large number of similar wheels. At the end of a run on wheels of one design the change-over to another design means delay while dies and rolls are changed. It is to the advantage of wheel user and wheel maker that such delays be kept to the minimum. Designs and specifications should not be allowed to proliferate unchecked.

An important step forward has been made by the Association of American Railroads in setting up a restricted list of standard designs and specifications for wrought steel wheels.

With the general adoption of such standards the wheel manufacturer can schedule his production on a sound manufacturing basis and the wheel user can count on finding adequate production of standard wheels for replacements or for new equipment.

Sixth in a series of six.

EDGEWATER STEEL COMPANY, PITTSBURGH, PA.

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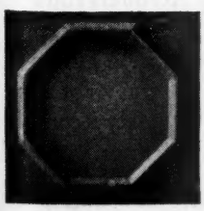
RESEARCH CARRIES ON

TODAY our many plants are busily engaged with production of steel castings, forgings and springs for the use of our fighting forces.

In this effort, our laboratories and research facilities are playing a most important part in the development of better compositions for cast armor.

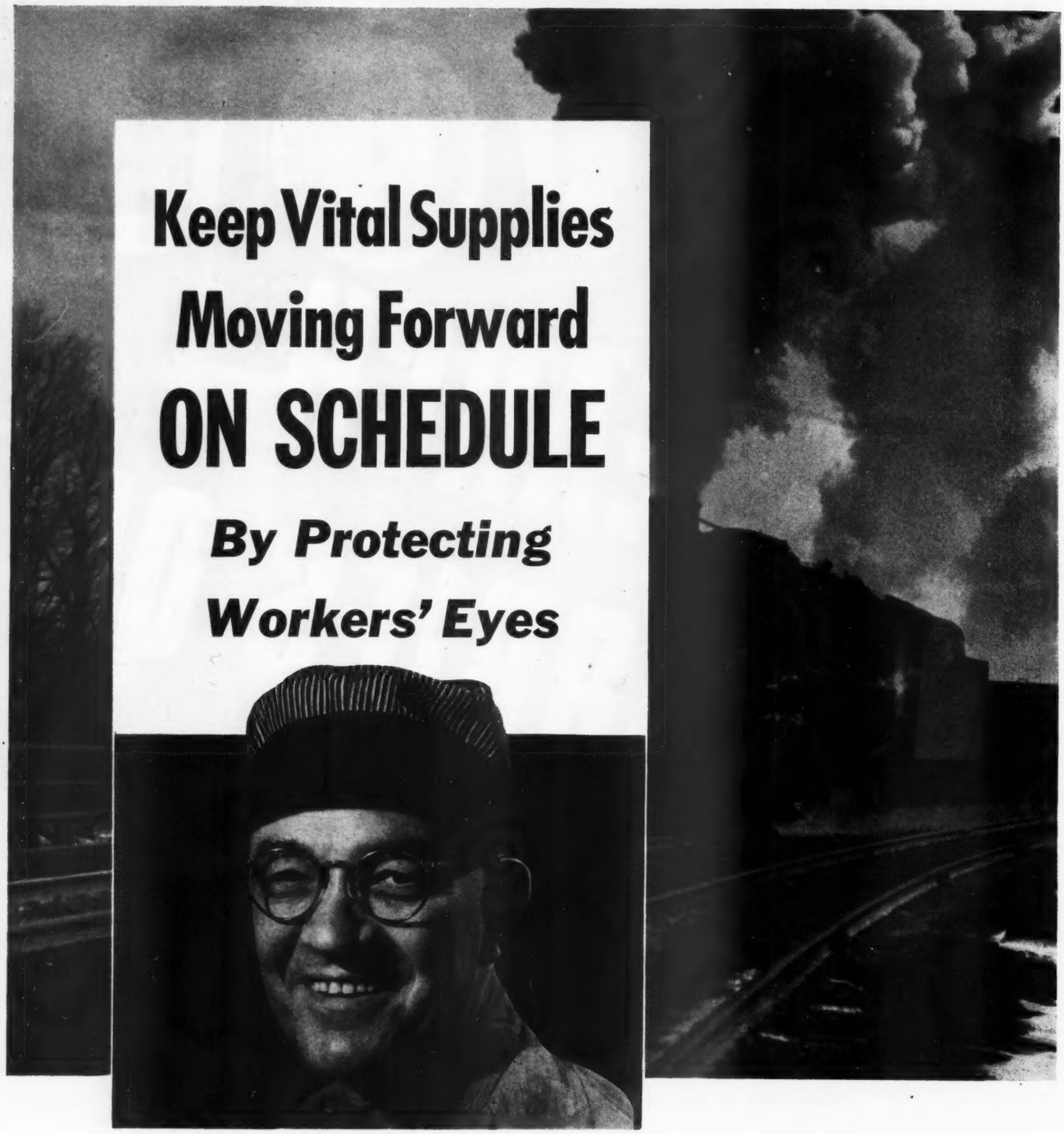
And yet . . . research in the railway field carries on. This research will be reflected . . . in improved A. S. F. products for freight cars and locomotives . . . in better clasp brakes for finer, faster equipment . . . in steel castings that will stand the tough tests of tomorrow.



The octagon . . . a trade mark of good steel castings.

AMERICAN STEEL FOUNDRIES

Chicago



"The time has come when we must utilize every hour capable of producing war equipment. Those lost through accidents prolong the war and cause needless sacrifice."— Lt. General Brehon Somervell, Commanding General, Services of Supply.*

You can do your part in speeding up the *delivery* of these urgent provisions and equipment for our fighting forces by eliminating eye accidents from your System.

American Optical Company, pioneer manufacturer of products to aid and protect vision can help you. AO offers you a complete line of easy-to-wear protective goggles—a special design for every type of eye hazard . . . posters . . . guides and charts for correct eye protection . . . the services of an expertly trained and highly experienced AO Safety Representative to work with your own Safety Director.

*From U. S. Army Safety Program Folder. "Conserve Man-Power for War-Power."

American Optical
COMPANY
SOUTHBRIDGE, MASSACHUSETTS

ALKALINE BATTERY EXTRAS

Light-weight . . . reduces total car weight . . . saves power . . . makes batteries easy to handle.

Durable all steel cell construction . . . withstands the overcharging and overdischarging inherent in the service . . . can't be damaged by freezing in winter . . . dissipates heat rapidly in summer.

Rapid Charging at any state of charge . . . affords high road capacity . . . minimizes need for yard charging.

Flexible . . . cells easily regrouped into batteries of higher or lower capacity; higher or lower voltage.

High Rates . . . for extra heavy load demands, full capacity at high rates and good voltage is assured by G-Type batteries.

Simple Maintenance . . . no sulphation, jar breakage, terminal corrosion, electrolyte stratification or other usual battery troubles.

Predictable . . . capacity tests at normal shopping periods permit reinstallation in cars with maximum assurance that capacity will continue adequate until next shopping.

Edison Storage Battery Division
Thomas A. Edison, Inc.
WEST ORANGE, N. J.

THIS POWER is predictable

It's the unexpected that makes the problem! Railroads were built to carry regular schedules on regular runs. Now they are being asked to do twice their usual job—and in addition, be ever-ready to move troops . . .

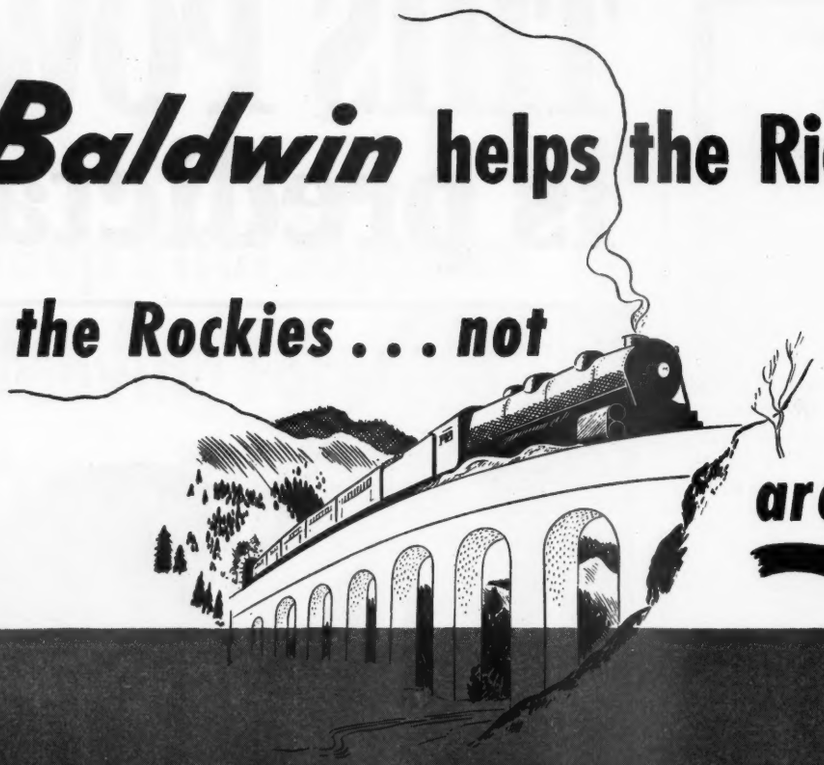
When the service can't be predicted, the batteries needed in passenger cars should be the kind whose performance *can* be predicted. This is so of Edison Alkaline Batteries. Their proven dependability is unquestioned, and they are best fitted to withstand the most difficult operating conditions. In other words, throughout railroading, industry and mining, where today war-winning is the number one project, they are proving a power source which helps operating men to keep their promises. Yes—

RAILROADS NEED THE RELIABILITY OF

Edison Alkaline BATTERIES

Baldwin helps the Rio Grande

"Thru the Rockies . . . not around them"



. . . on the main lines, it's Baldwin modern Steam
. . . in yards and terminals, it's Baldwin Diesel-Electrics

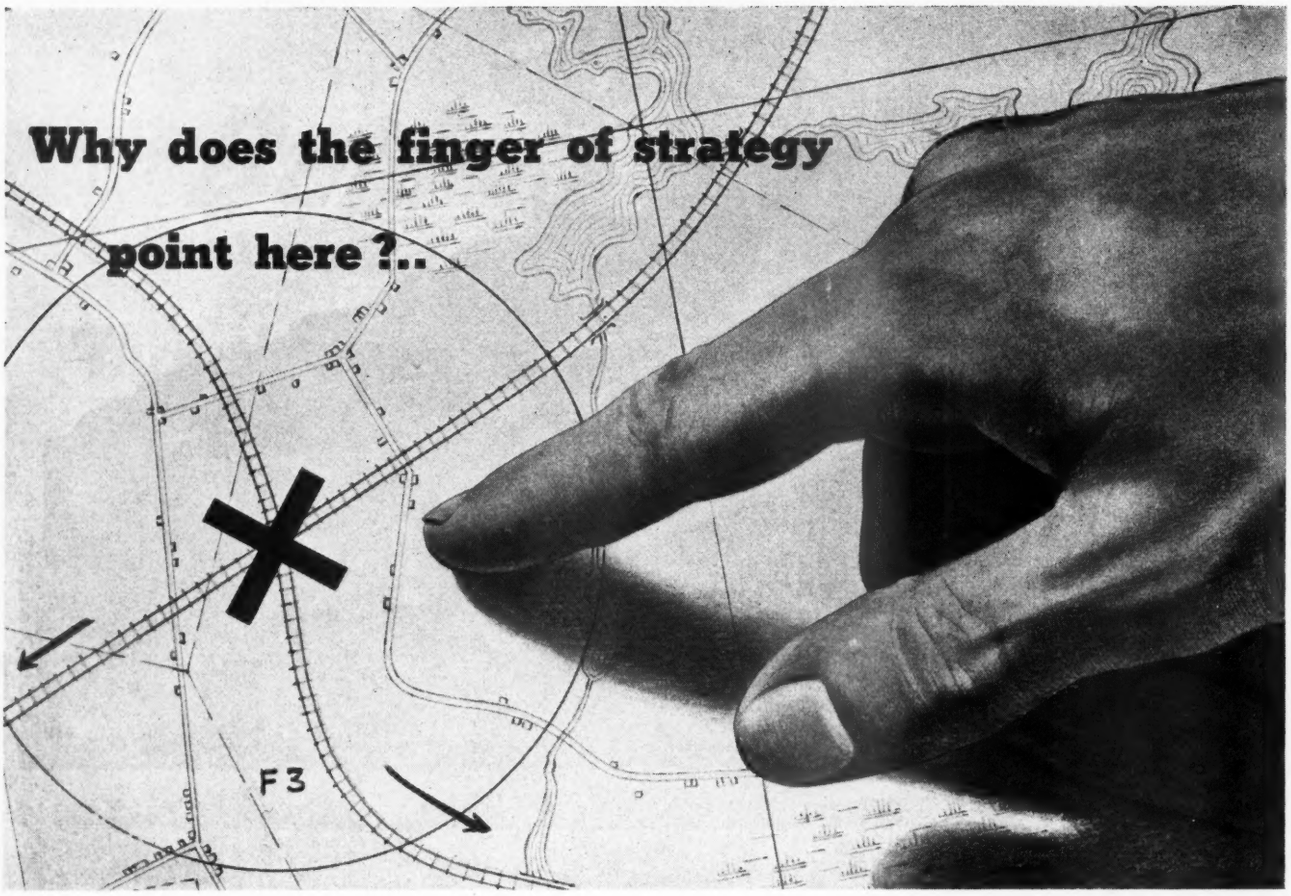
The Denver & Rio Grande Western Railroad began operations in 1871 with Baldwin Locomotives, using light engines of the 2-4-0 type for passenger service, and the 2-6-0 (Mogul) type for freight. Since these very first locomotives, the Rio Grande has placed almost 500 Baldwin Locomotives in service, the latest of which are fifteen single-expansion articulated 4-6-6-4 type modern steam locomotives, and nine 660 hp. diesel-electric switching engines, for use in yards and terminals.

These Baldwin Locomotives, like the thousands of others on America's great railroad systems, are helping transport the greatest tonnage in the history of the world. In addition to locomotives, this 112-year old locomotive builder is turning out implements of war for our Armed Forces . . . tanks, guns, gun-mounts, ship propellers, diesel engines, castings and forgings.

Baldwin serves the Nation which the Railroads helped to build

BLW
THE BALDWIN GROUP

THE
BALDWIN
LOCOMOTIVE WORKS
Philadelphia



...because it's a railway junction

Every day the communiques point up the crucial importance of railways in the zone of battle.

"Our forces cut the railway at X, preventing the enemy's retreat."

"Capture of the enemy railway point prevents reinforcements."

Here at home, thousands of miles from the fighting fronts, American railways are a vital part of Allied strategy. Railway men and shippers are speeding materiel by the billions of tons, keeping civilians supplied, and winning the war against time and the Axis.

55,000 Cars of the GATX Fleet are helping to roll up America's amazing transportation record. And every car is proving over and over again the dependability of General American Transportation construction and the efficiency of General American Transportation service.

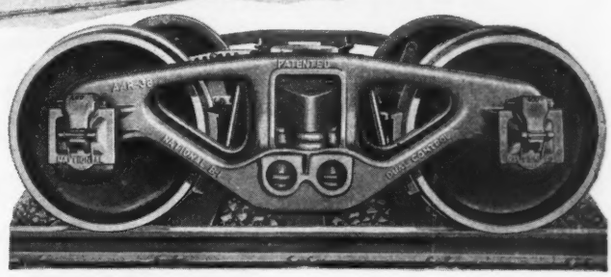
GATX
GENERAL AMERICAN

A SYMBOL OF INTEGRITY FOR OVER 40 YEARS

GENERAL AMERICAN TRANSPORTATION CORPORATION

Chicago

NATIONAL B-1 TRUCKS
with
DUAL CONTROL



Will Help Solve The Transportation Problem

THE present transportation shortage demands that all existing cars be kept in good running order.

National B-1 Trucks with Dual Control help do that by controlling both vertical and horizontal oscillations.

Two friction elements in each side frame control spring bounce and keep trucks in alinement, thus assuring greater protection to both car and lading.

They meet all A.A.R. requirements.

NATIONAL MALLEABLE AND STEEL CASTINGS CO.

General Offices: CLEVELAND, OHIO

Sales Offices: New York, Philadelphia, Chicago, St. Louis, San Francisco.
Works: Cleveland, Chicago, Indianapolis, Sharon, Pa., Melrose Park, Ill.

Canadian Representatives: Railway and Power Engineering Corporation, Ltd., Toronto and Montreal

When the Rays of Peace Pierce the Clouds of War

When that day comes, as it surely will, there will arise a new, peacetime demand for fast, dependable transportation to meet the needs of a victorious people.

Surely the better, brighter world for which we fight today will see many amazing improvements in land, sea, and air travel. Just as surely, too, will a great many postwar common carriers—trains, busses, airplanes, and boats—benefit by the dependability and workmanship of modern Adlake Specialties and Equipment.

Today the makers of Adlake Products are engaged in vital war work. We are engaged in research, too—searching for new and better ways to design and manufacture such essential transportation equipment as windows, curtains and fixtures, lamps and lanterns, railway car diaphragms, vestibule curtains, and a wide variety of hardware trimmings.

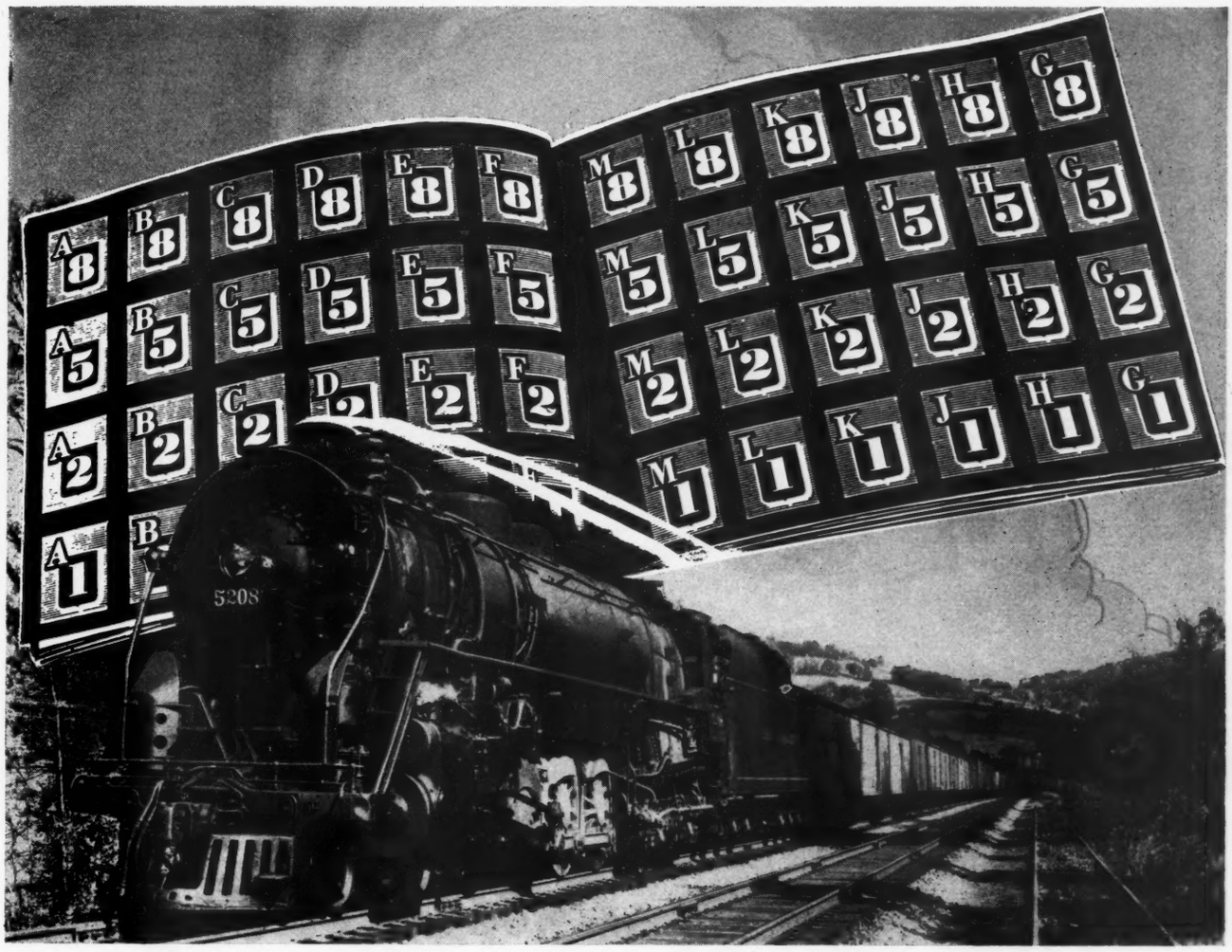
This is our way of planning for the future. In *your* planning for the future, consider the advantages of using Adlake Specialties and Equipment when they are once more available for unrestricted use on railway, airway, highway, and waterway.

Adlake
TRADE MARK

THE ADAMS & WESTLAKE COMPANY

ESTABLISHED IN 1857 — ELKHART, INDIANA — NEW YORK · CHICAGO

MANUFACTURERS OF ADLAKE SPECIALTIES AND EQUIPMENT FOR RAILWAY, AIRWAY, HIGHWAY, AND WATERWAY



An Important *Point* in Food Rationing

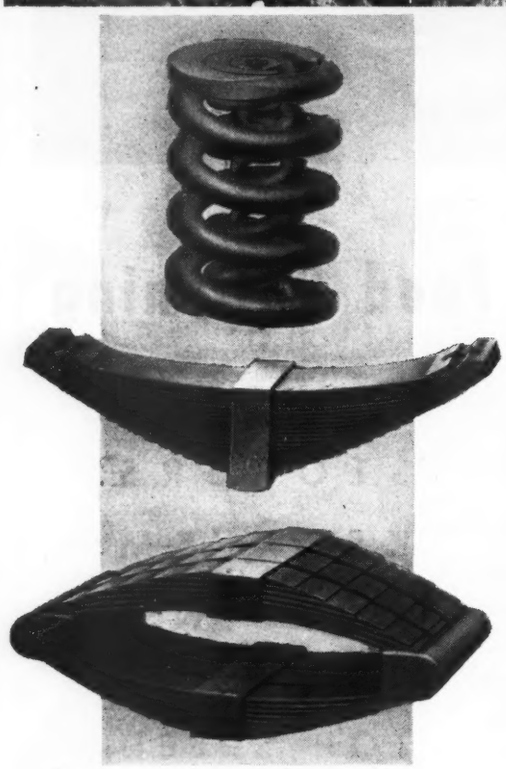
8 Points will get you a No. 1 can of Grapefruit in Maine or California. Why . . . ? Railroads with longer, faster, trains have brought producers closer to their market—distance no longer confines food or any other product to one locality.

1942 saw the greatest production and movement of food in our history —that was also the year of record breaking production and movement of war materiel and raw materials—the year of greatest movement of troops—1943 will surpass 1942.

U. S. Railroads are meeting every distribution problem with maximum utilization of equipment. Standard Stokers on more than 16,000 Locomotives are a contributing factor in this outstanding job.

STANDARD STOKERS. KEEP 'EM ROLLING AT TOP SPEED

THE STANDARD STOKER COMPANY, INC
NEW YORK • CHICAGO • ERIE •



Railway Springs

KEEP 'EM ROLLING

When provided with "Railway" Springs there is an extra assurance that the locomotives and cars assigned to all-out service will keep on the job. Protecting the track, equipment and lading is "Railway" Springs job.

AMERICAN LOCOMOTIVE COMPANY
Railway Steel Spring Division
30 CHURCH STREET, NEW YORK, N. Y.

This Trade Mark of Quality

Identifies COMMONWEALTH CAST STEEL PRODUCTS

THIS distinctive trade mark on COMMONWEALTH PRODUCTS assures exceptional quality and dependability—thoroughly proven in service on thousands of locomotives and cars for more than a third of a century.

With America at War, the dependability of COMMONWEALTH PRODUCTS is more vital than ever. Locomotives and Cars must spend more time on the road, less time in repair shops—more troops, passengers, and freight must be hauled on faster, continuous schedules.

Commonwealth One-Piece Cast Steel Products are doing their full part to enable the railroads to meet the unprecedented demands which transportation faces today. IN PEACE OR WAR—QUALITY COUNTS.

GENERAL STEEL CASTINGS

EDDYSTONE, PA. GRANITE CITY, ILL.

How Sturtevant helps ALL RAILROADS lick this wartime problem

"Helping us make those periodic checkups"

SAY MAINTENANCE MEN

"Sturtevant gives us a specially-prepared Maintenance Guide for hanging on our service shop wall. It lists the most vulnerable parts of mechanical and ice systems—and the most efficient, time saving methods of servicing. We use it every day to help prolong the life of equipment and to keep air conditioned cars rolling."

"Helping me do a much better job"

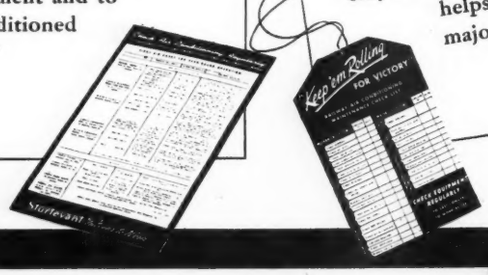
SAY NEWLY TRAINED MEN

"Those handy Service Tags that Sturtevant furnishes help us see that every air conditioning unit is properly and promptly cared for. One of them is tied to each unit to remind us of regular inspections and simplify the procedure. It made our training easy in the first place and now helps us guard against major repairs."

"Helping us to get emergency repairs made"

SAY THE GENERAL FOREMEN

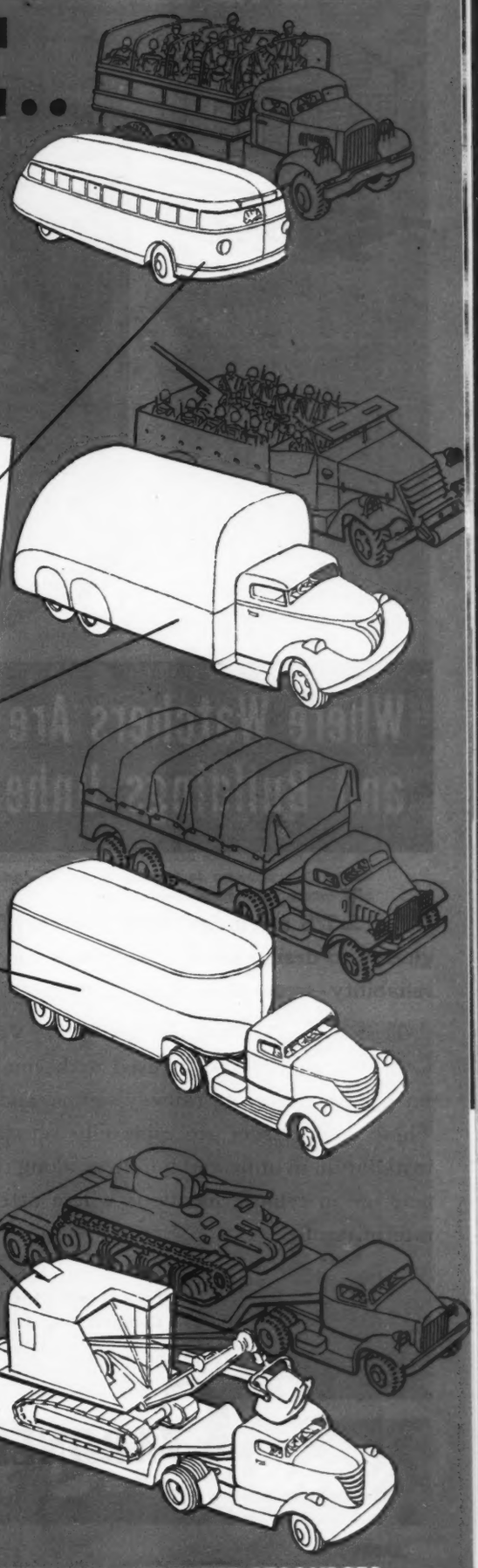
"We feel secure in knowing that Sturtevant is ready to make repairs on air conditioning equipment that we can't handle in our own shop. They'll put fans, coils or complete units back into first class condition—within government limitations on the use of new materials, of course. And we can call on one of their Railway Air Conditioning Engineers for advice on the best methods of handling that kind of a job."



★ A supply of both the Sturtevant Equipment Tags and Wall Charts has been sent to the engineer in charge of Air Conditioning of *each and every railroad.* Additional copies gladly sent on request to Railway Air Conditioning Division, B. F. STURTEVANT COMPANY, HYDE PARK, BOSTON, MASS.

Sturtevant
REG U S PAT OFF
Puts Air to Work

PEACE..



ORDER OUT OF CHAOS

Second only to complacency in face of attack is to be unprepared for peace ★ Far from being clairvoyant, we prophesy nothing except what every thinking operator of motor transport units already knows ★ By this we mean that even though hostilities should cease, it will be quite some time before an industry can convert to satisfy the demands which will obviously be placed upon it ★ Thus it is apparent that rehabilitation will be just as effective a weapon in peace as in war . . . and need we suggest that genuine Bendix-Westinghouse Air Brakes and Auxiliary Air Controls offer the quickest, most economical step in the modernization of equipment which must stretch over a considerable period ★ So don't delay, see your authorized Bendix-Westinghouse Distributor today. He'll be happy to give you sound advice relative to the many exclusive advantages genuine Bendix-Westinghouse Air Control holds for you.

BENDIX - WESTINGHOUSE AUTOMOTIVE AIR BRAKE COMPANY
ELYRIA, OHIO

BENDIX-WESTINGHOUSE AIR BRAKES

AN ORGANIZATION WHOSE UNDIVIDED EFFORT AND COMPLETE RESOURCES ARE DEVOTED TO YOUR CONVENIENCE AND SAFETY

Where Watchers Are Few and Buildings Unheated

IT'S a principle with Gardner-Denver engineers to design an air compressor for maximum reliability—regardless of size.

That's why Gardner-Denver "WX" Vertical Air-Cooled Compressors are used with complete confidence for operating railway signals and switches. These compressors are especially satisfactory for installation in unheated buildings along the right of way, or in remote locations where attendance is intermittent.

Here are a few of the many advantages you'll find in the "WX" Compressor:

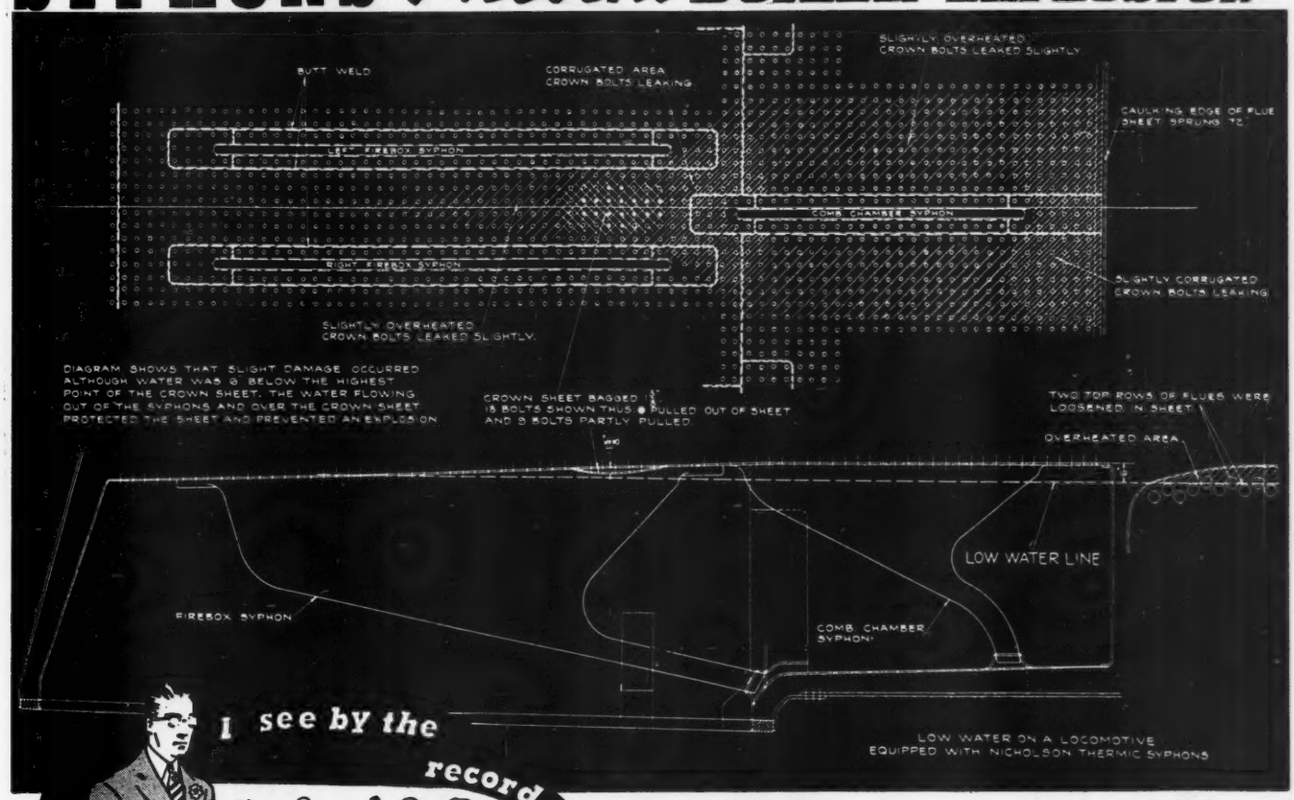
1. Compact design that saves space.
2. Castings of GarDurloy for extra strength and hardness where needed.
3. Timken roller main bearings—fully adjustable.
4. Drop forged, alloy steel crankshaft, with integral counterweights to assure smooth operation.
5. "Air-Cushioned" plate type valves that actually become tighter with use.
6. Heavy circumferential cooling fins that add to strength of cylinder.
7. Automatic start and stop control.

For complete specifications on Gardner-Denver "WX" Air-Cooled Compressors, write Gardner-Denver Company, Quincy, Illinois

GARDNER-DENVER

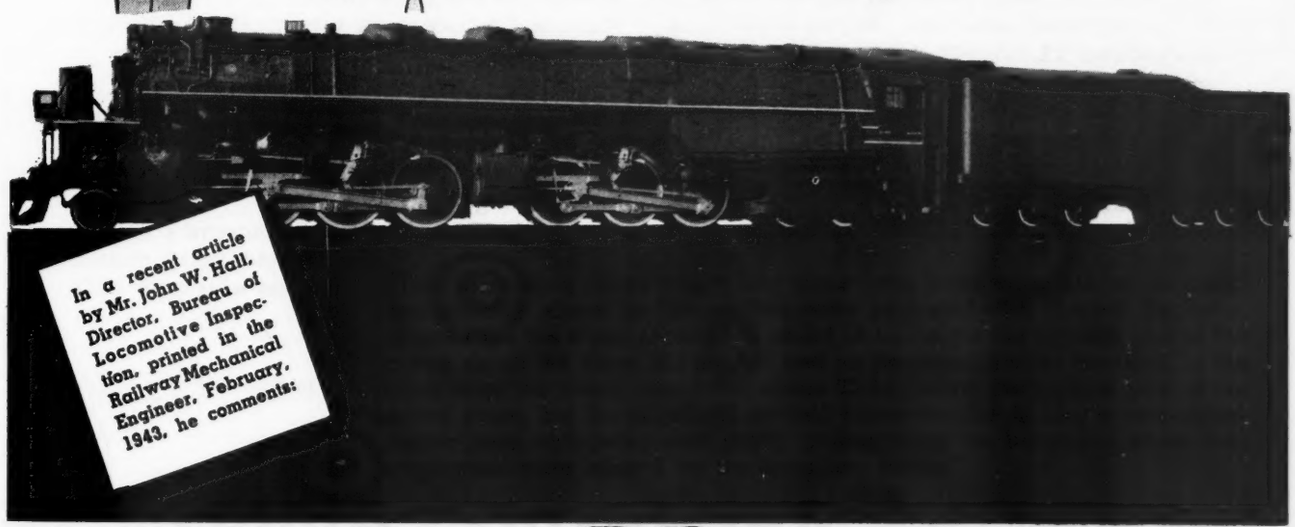
Since 1859

SYPHONS *Prevent* BOILER EXPLOSION


BUTT WELD
CORRUGATED AREA
CROWN BOLTS LEAKING
SLIGHTLY OVERHEATED
CROWN BOLTS LEAKED SLIGHTLY
CAULKING EDGE OF FLUE SHEET SPRUNG 72"
LEFT FIREBOX SYPHON
COMB. CHAMBER SYPHON
RIGHT FIREBOX SYPHON
SLIGHTLY CORRUGATED
CROWN BOLTS LEAKING
SLIGHTLY OVERHEATED
CROWN BOLTS LEAKED SLIGHTLY
DIAGRAM SHOWS THAT SLIGHT DAMAGE OCCURRED ALTHOUGH WATER WAS 6" BELOW THE HIGHEST POINT OF THE CROWN SHEET. THE WATER FLOWING OUT OF THE SYPHONS AND OVER THE CROWN SHEET PROTECTED THE SHEET AND PREVENTED AN EXPLOSION
CROWN SHEET BAGGED
18 BOLTS SHOWN THUS ● PULLED OUT OF SHEET
AND 8 BOLTS PARTLY PULLED
TWO TOP ROWS OF FLUES WERE LOOSENED IN SHEET
OVERHEATED AREA
LOW WATER LINE
FIREBOX SYPHON
COMB. CHAMBER SYPHON
LOW WATER ON A LOCOMOTIVE EQUIPPED WITH NICHOLSON THERMIC SYPHONS

This locomotive is still in service as an important unit in the war effort because when built about a year ago it was equipped with Nicholson Thermic Syphons.

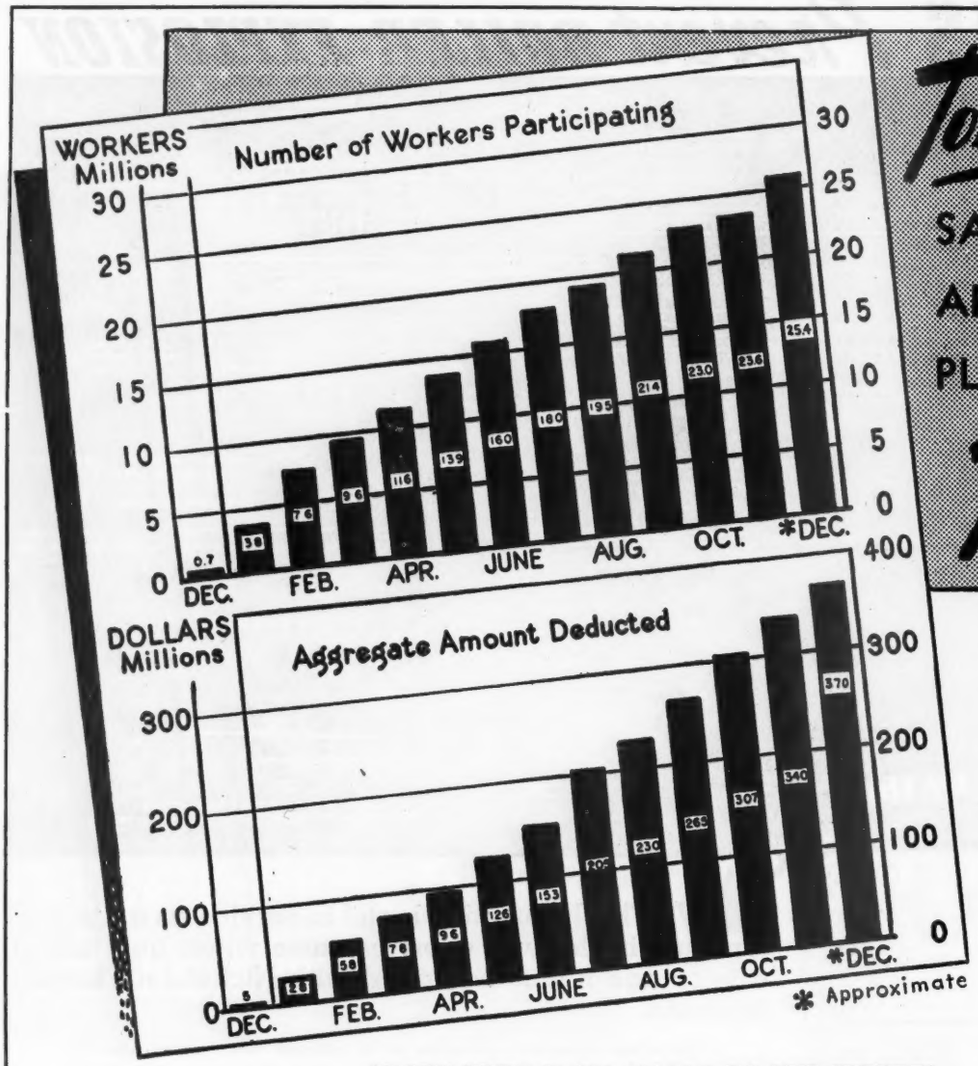
This is the expressed conclusion of the railroad management after investigating the conditions and small amount of damage with water six inches below high point of crown sheet under full steam and hard firing while hauling a heavy freight train.



In a recent article by Mr. John W. Hall, Director, Bureau of Locomotive Inspection, printed in the Railway Mechanical Engineer, February, 1943, he comments:

Locomotive Firebox Company

NEW YORK **CHICAGO** **MONTREAL**



Tomorrow's SALES CURVES ARE BEING PLOTTED . . . Today

THESE CHARTS SHOW ESTIMATED PARTICIPATION IN PAYROLL SAVINGS PLANS FOR WAR SAVINGS BONDS *(Members of Armed Forces Included Starting August 1942)*

STUDY THEM WITH AN EYE TO THE FUTURE!

There is more to these charts than meets the eye. Not seen, but clearly projected into the future, is the sales curve of tomorrow. Here is the thrilling story of over 25,000,000 American workers who are today voluntarily saving close to FOUR AND A HALF BILLION DOLLARS per year in War Bonds through the Payroll Savings Plan.

Think what this money will buy in the way of guns and tanks and planes for Victory today—*and mountains of brand new consumer goods tomorrow.* Remember, too, that War Bond money grows in value every year it is saved, until at maturity it returns $4 for every $3 invested!

Here indeed is a solid foundation for the peace-time business that will follow victory. At the same time, it is a real tribute to the voluntary American way of meeting emergencies that has seen us through every crisis in our history.

But there is still more to be done. As our armed forces continue to press the attack in all quarters of the globe, as war costs mount, so must the record of our savings keep pace.

Clearly, on charts like these, tomorrow's Victory —*and tomorrow's sales curves*—are being plotted today by 50,000,000 Americans who now hold WAR BONDS.

EVERYBODY EVERY PAYDAY AT LEAST 10%

Save with

War Savings Bonds

This space is a contribution to America's all-out war effort by

RAILWAY AGE

Railroads *made Hitler*

the sick man of Europe

HIS RAILROADS . . . AND OURS. **HIS** because he neglected them . . . caused the railroad break-down inside Europe, first of the internal German collapses the civilized world longs to see. **OURS** because American railroad men, handling history's greatest traffic with fewer cars and engines, *are* the miracle men Hitler would have liked his Germans to be. Koppers, making many railroad products last much longer, saves railroads hundreds of thousands of priceless man-hours. *Example:* Locomotives once were laid up every 25,000-45,000 miles for new piston packing. Now locomotives having Koppers American Hammered packing average 100,000 miles, and have hit a quarter million. *Example:* Railroads once tore up millions and millions of ties a year. *Decay!* Now pressure-creosoted ties last 20-30 years instead of 5-6. *Example:* Railroads own 370,000 buildings. Koppers coal-tar materials keep maintenance effort at a minimum on the roofs of thousands of these.—Koppers Company, Pittsburgh, Pa.

Buy United States War Bonds and Stamps

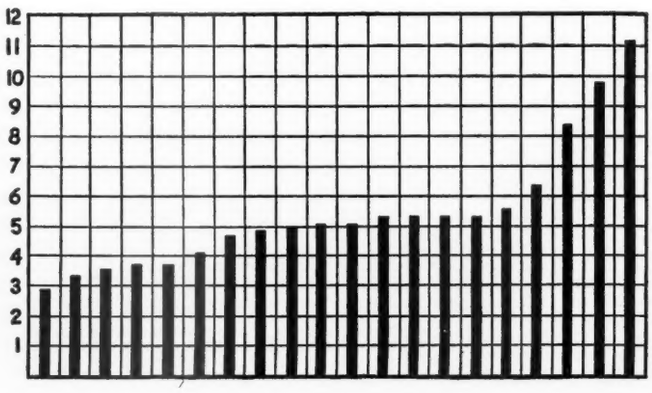
KOPPERS

THE INDUSTRY THAT SERVES ALL INDUSTRY

Pressure-Creosoted Tie Life

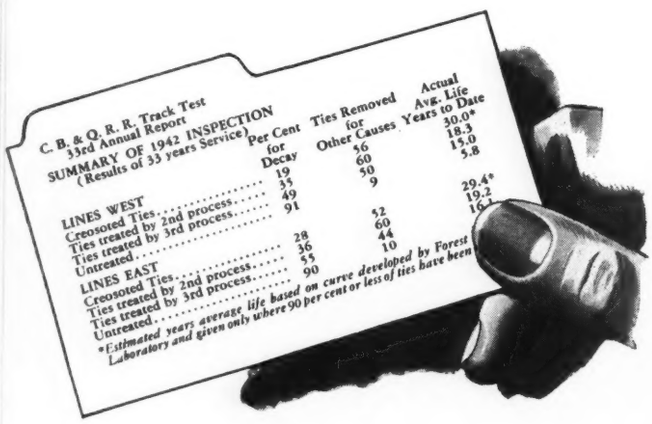
STILL CLIMBING

in C B & Q Test



Back in 1909-10, the exact life of pressure-treated ties was still a subject of debate with many railroad men. C B & Q engineers decided to find out. They made a number of 1000-tie test installations. Recently they released the 33rd annual report.

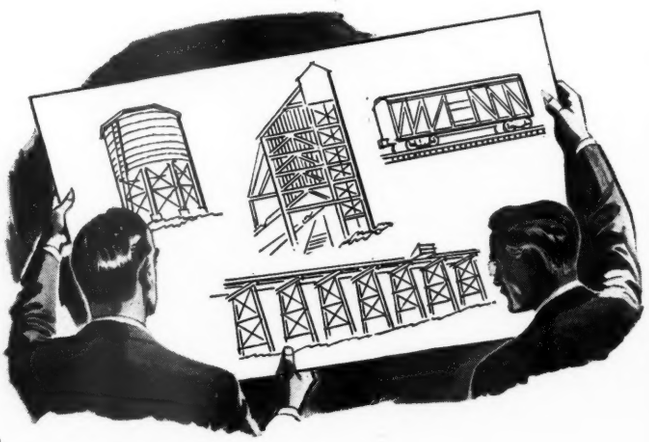
Checks of the life of *untreated* ties show a range of from 2.9 years for cottonwood, to 11.1 years for white oak. Ash, tamarac, loblolly pine, poplar, red oak, white elm and hickory form the median group, with useful service untreated averaging from 5 to 5.5 years.



C. B. & Q. R. R. Track Test
33rd Annual Report
SUMMARY OF 1942 INSPECTION
(Results of 33 years Service)

	Per Cent for Decay	Ties Removed for Other Causes	Actual Avg. Life Years to Date
LINES WEST			
Creosoted Ties	19	56	30.0*
Ties treated by 2nd process	35	60	18.3
Ties treated by 3rd process	49	50	15.0
Untreated	91	9	5.8
LINES EAST			
Creosoted Ties	35		29.4*
Ties treated by 2nd process	90	52	19.2
Ties treated by 3rd process		60	16.1
Untreated	28	44	
	36	10	
	55		

*Estimated years average life based on curve developed by Forest Laboratory and given only where 90 per cent or less of ties have been



This Report shows average life of pressure-creosoted ties as now estimated to be 30 and 29.4 years, for lines west and east, respectively. This continues the steady climb from 28+ years in 1940 and 29+ years in 1941. Between 20% and 25% of the *original ties* are still in service.

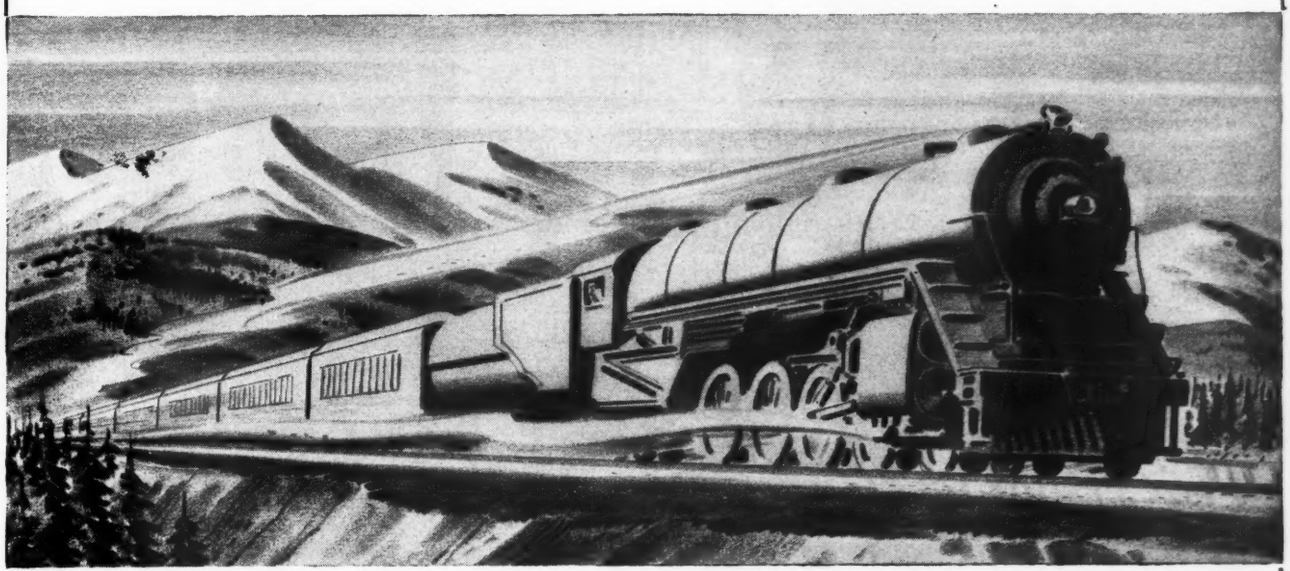
Impressive savings—not only in money, but in time—through the use of pressure-creosoted material have led many engineers to extend the proven economies to tanks, trestles, docks, car decks, and other structures. Would you like to see some figures? Just write.

KOPPERS COMPANY
WOOD PRESERVING DIVISION
PITTSBURGH, PA.

KOPPERS

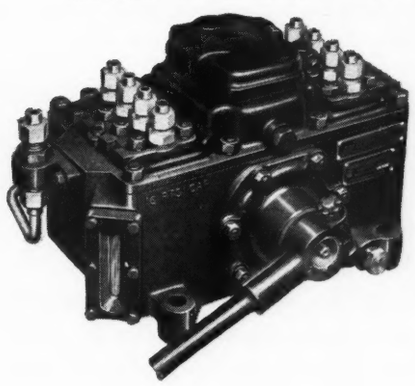
THE INDUSTRY THAT SERVES ALL INDUSTRY

MODERN LUBRICATION FOR MODERN POWER



Railroads are carrying every possible ton, and are working their motive power to the limit. It is essential that all the vital moving parts of a locomotive be efficiently and dependably lubricated.

"Detroit" Locomotive Mechanical Lubricators, made in sizes from one to sixteen feeds, and in capacities from ten to thirty-two pints, provide just the dependable and efficient lubrication system needed for valves and cylinders. In combination with "Detroit" Two and Four-Way Feed Dividers, this same accurate and reliable system may be used to lubricate guides, hubs, shoes, wedges and other chassis points.



For long and dependable service, with extremely low maintenance cost, specify "Detroit" Lubricators.

For the many railroads whose motive power is now equipped with "Detroit" Mechanical Lubricators, there is a clear, concise wall chart for shop and roundhouse covering proper servicing and maintenance of these lubricators. It's just off the press—send for a copy.

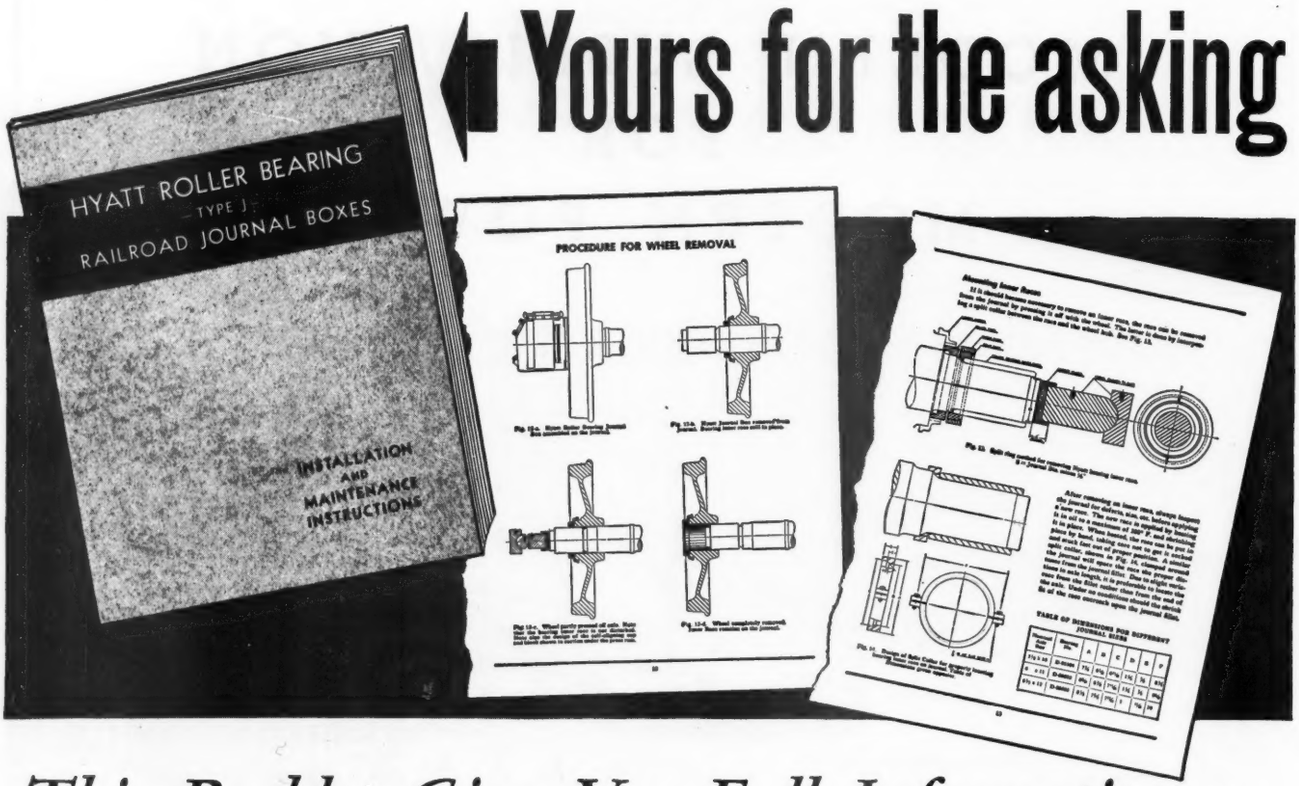
DETROIT LUBRICATOR COMPANY

General Offices: DETROIT, MICHIGAN

Division of AMERICAN Radiator and "Standard" Sanitary Corporation

Canadian Representatives—**Railway and Engineering Specialties Limited, Montreal, Toronto, Winnipeg**

Yours for the asking



This Booklet Gives You Full Information on Hyatt Journal Boxes • • • Answers All About Their Installation and Maintenance

1 When does a journal box require lubrication?

2 What kind of oil should be used?

3 How much lateral clearance should a Hyatt journal box have?

4 How do you adjust lateral clearances?

5 When should bearings and boxes be inspected?

6 How much wear is permissible in box liners?

7 How are inner races removed from an axle?

8 How are inner races mounted and located?

9 Should bearing parts be kept together and why?

10 How should wheels be removed from roller bearing axles?

11 How should repair parts be ordered?

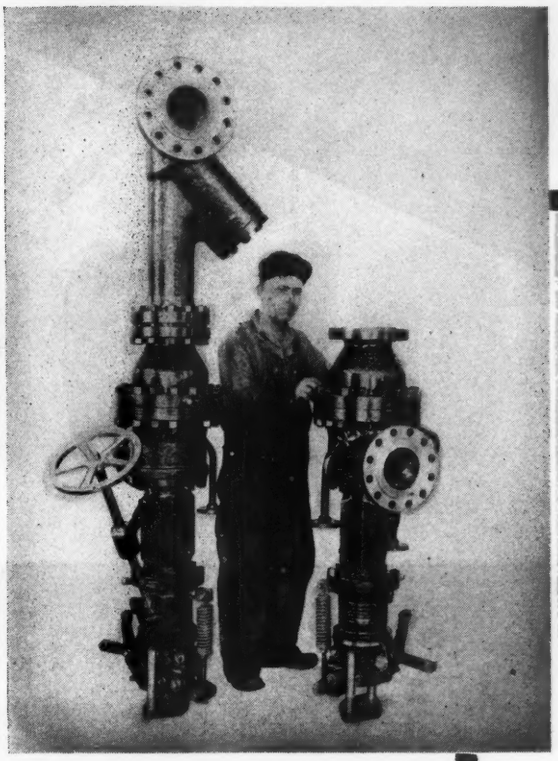
12 How are journal boxes taken apart?

13 How should spare parts be stored?

All these questions and more are answered in the above illustrated booklet. If you do not have a copy, send for it now. No obligation. Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

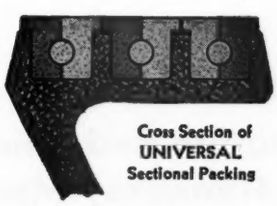
HYATT ROLLER BEARINGS

Our War Program



To Keep 'em Sailing

One of the 5½ inch inverted trip throttle valves which are being manufactured at the L.F.M. plant for Navy and Merchant Vessels.



Cross Section of UNIVERSAL Sectional Packing

"Pioneers In The Development of the Light Weight Piston and Combination Sectional Packing."
ESTABLISHED 1872

To Keep 'em Rolling

IT'S a long way from Atchison, Kansas, to the active fronts but we are proud to announce that the major portion of our plant production in this City is playing its part in the victories on land and sea.

This production consists of vital machine tools required in the manufacture of ordnance equipment, large precision valves for navy and merchant vessels and equipment for the railroads to help keep the wheels rolling.

L.F.M. Light Weight Pistons and *Combination Sectional* Bull Ring Packing are contributing to the economy of locomotive operation and availability of power.

A combination of a light-weight piston riding on lipped rings, pioneered by L.F.M. engineers, is acclaimed by leading mechanical supervisors as an outstanding factor in the conservation of materials and reduction of repair costs.

THE LOCOMOTIVE FINISHED MATERIAL CO.
ATCHISON, KANSAS
310 SOUTH MICHIGAN AVE., CHICAGO
GRAYBAR BLDG., NEW YORK CITY

LFM
LIGHT WEIGHT PISTONS
and Combination Sectional
BULL RING PACKING

HENNESSY LUBRICATOR

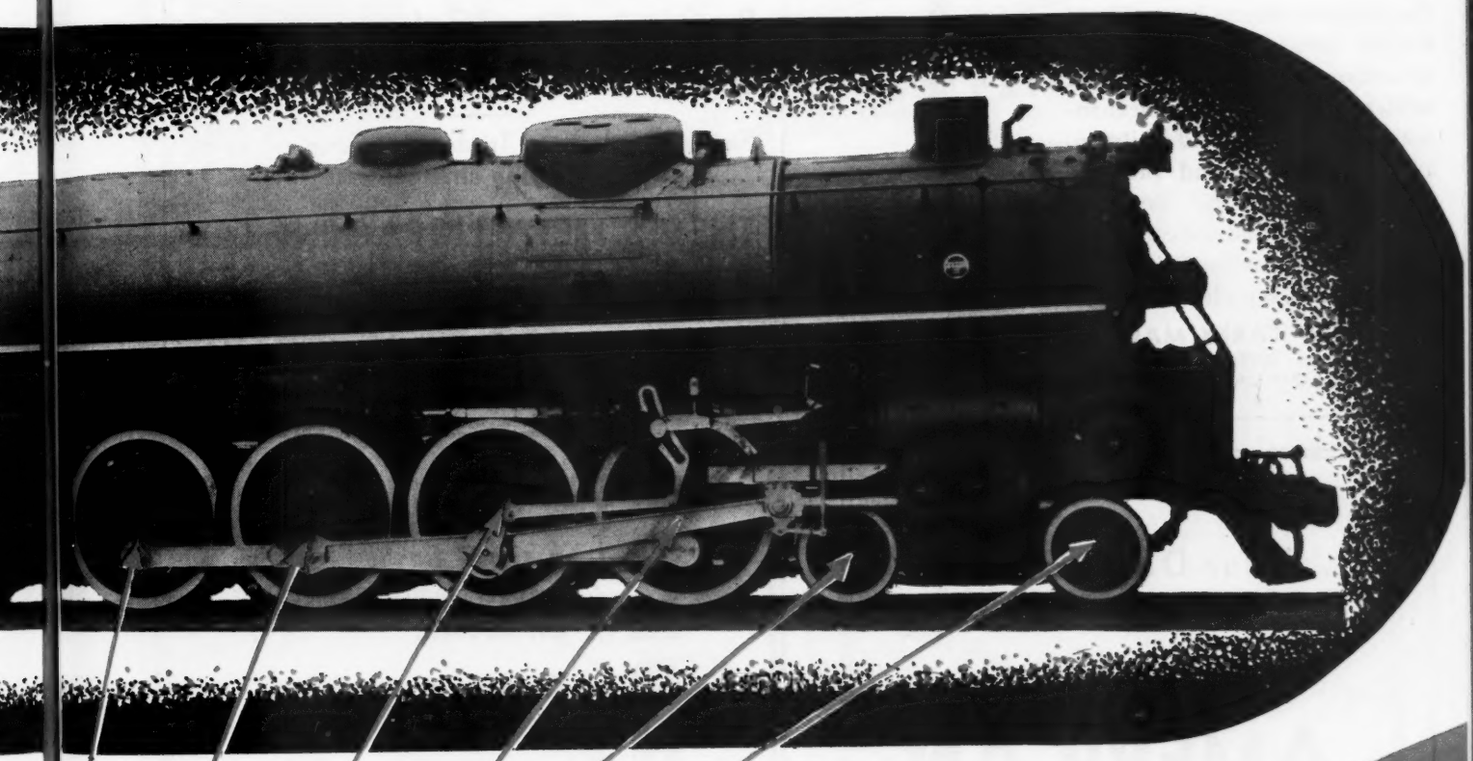
LOC

**All of the journals on this locomotive and tender built by
tive Works, are equipped with Hennessy Mechanical Jo
obtain the best and most efficient lubrication and ec**

Hennessy Mechanical Lubricators provide a constant oil bath to each journal, reducing the cost of lubricant, increasing the life of bearings and journals indefinitely. In many instances it is not necessary to turn driving journals or rebore crown bearings during more than 200,000 miles of operation, after which the bearings and journals are good for continued indefinite operation.

For Modern

LOCOMOTIVES



built by the Baldwin Locomo-
cal Journal Lubricators to
nd economical operation . . .

HENNESSY
LUBRICATOR CO.

75 WEST STREET / NEW YORK

Safety

FOR CAR UNDERFRAMES WHEN YOU PAINT WITH

Carey FIBROUS CAR CEMENT

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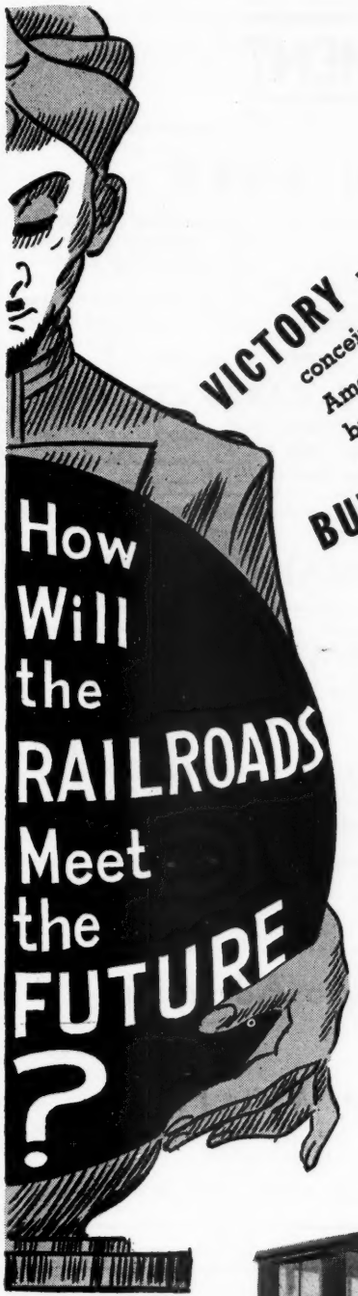

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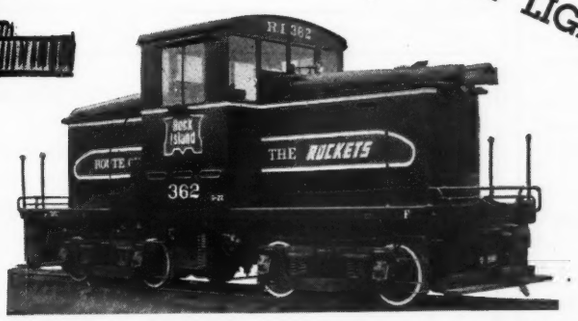

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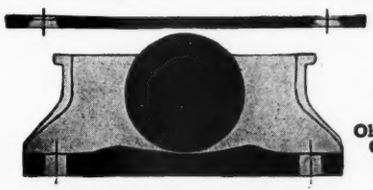

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